

JC928 U.S. PTO
10/067540
02/05/02

1/ 332

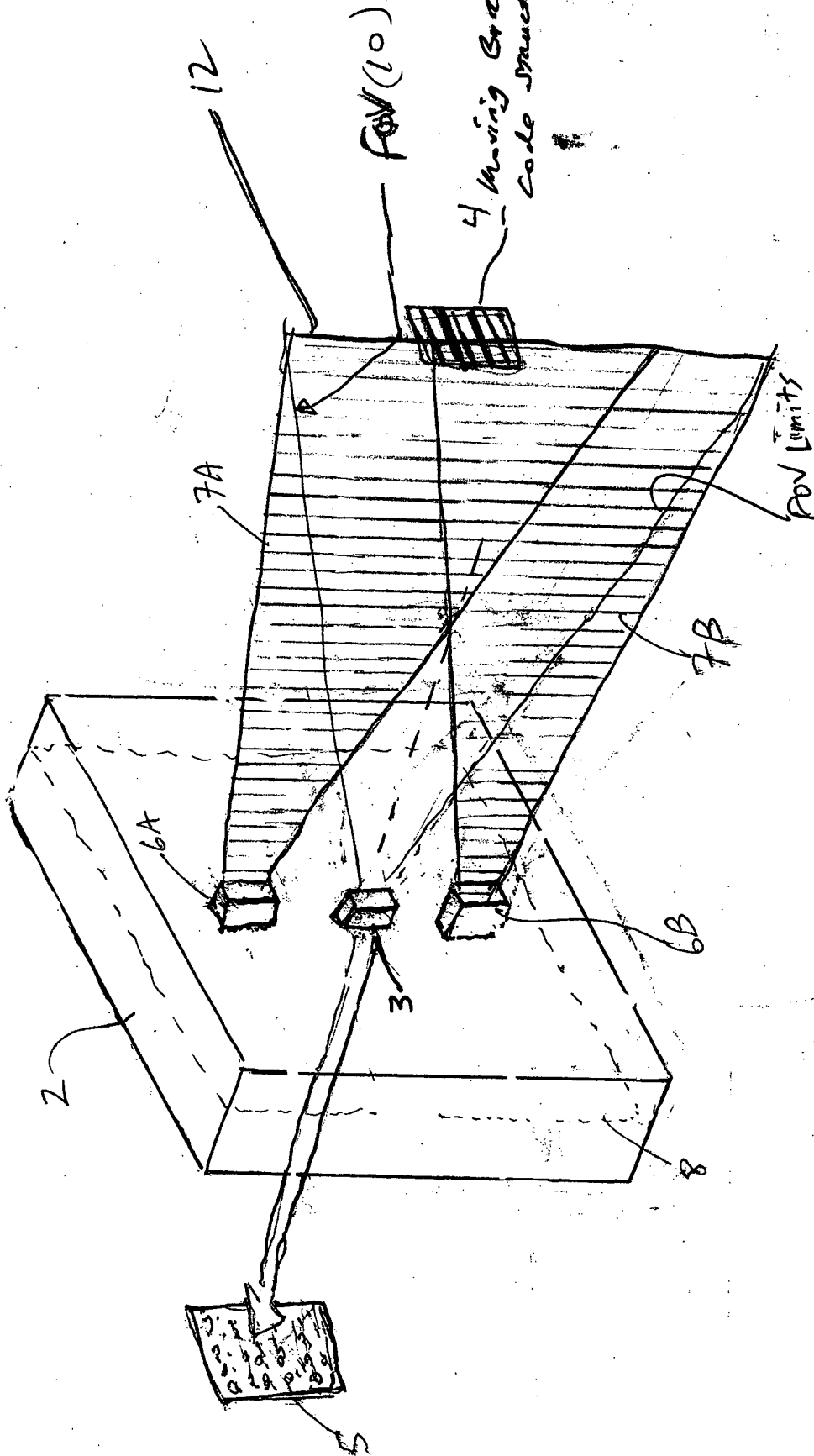
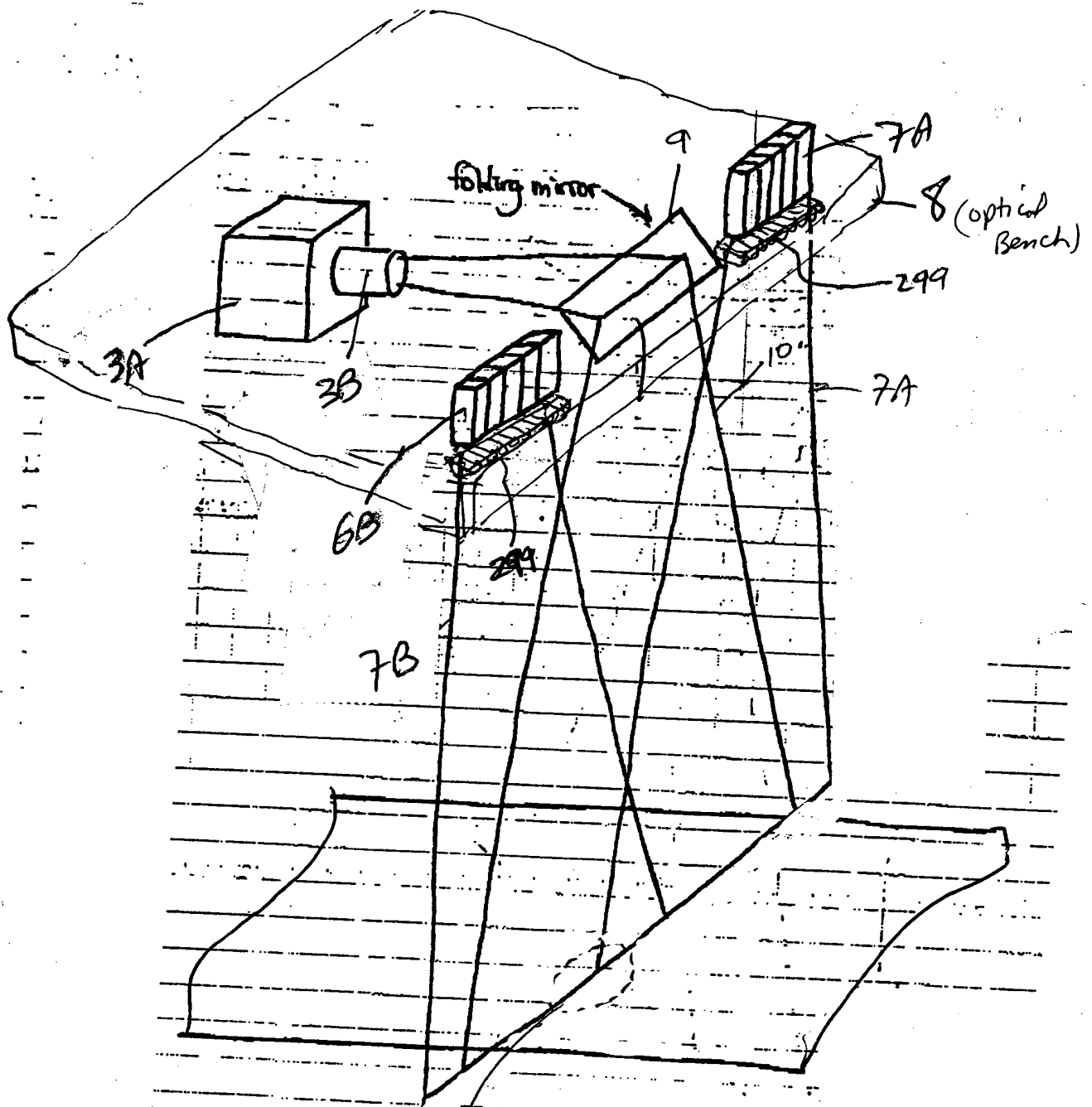


FIG 1A



2/332



↑
1A

FIG. 1B1

Magnified Field of View of
CCD Sensor element on
object
width of projected
Planar laser illumination
Beam on
object

FIG. 1B3

FIG. 1B2

- (1) Fixed focal length camera lens
- (2) Fixed distance

Module housing

Linear (1D) Detector array

Planar laser illumination beam undergoes micro-movement

X_{FS}

1A

3B

3/332

6A

9



FW 10



11A 11C 11F

6B

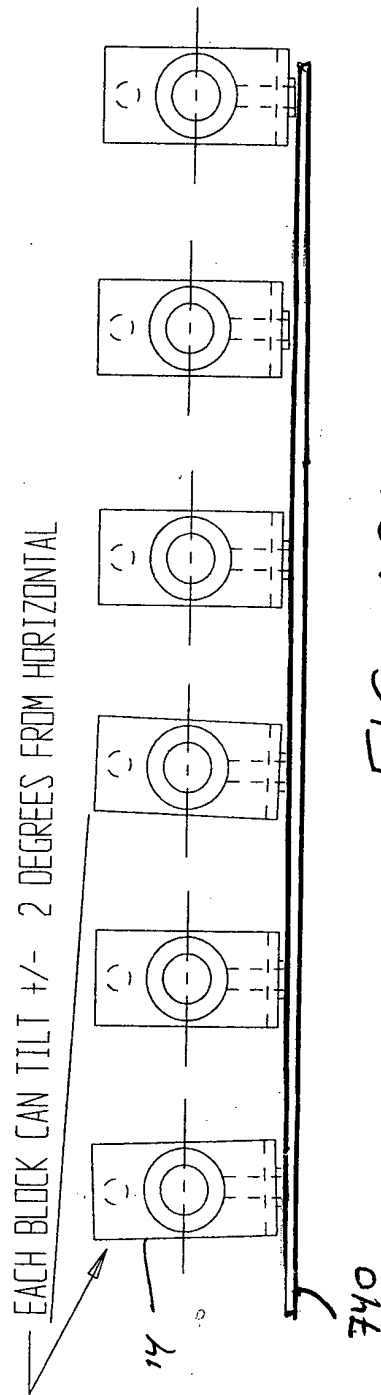
7B

299

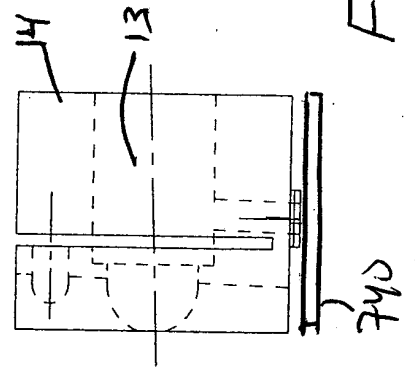
299

7A

FIG. 1B2



VLD BLOCK CAN PITCH FORWARD FOR ALIGNMENT WITH OTHER VLD BEAMS



6/332

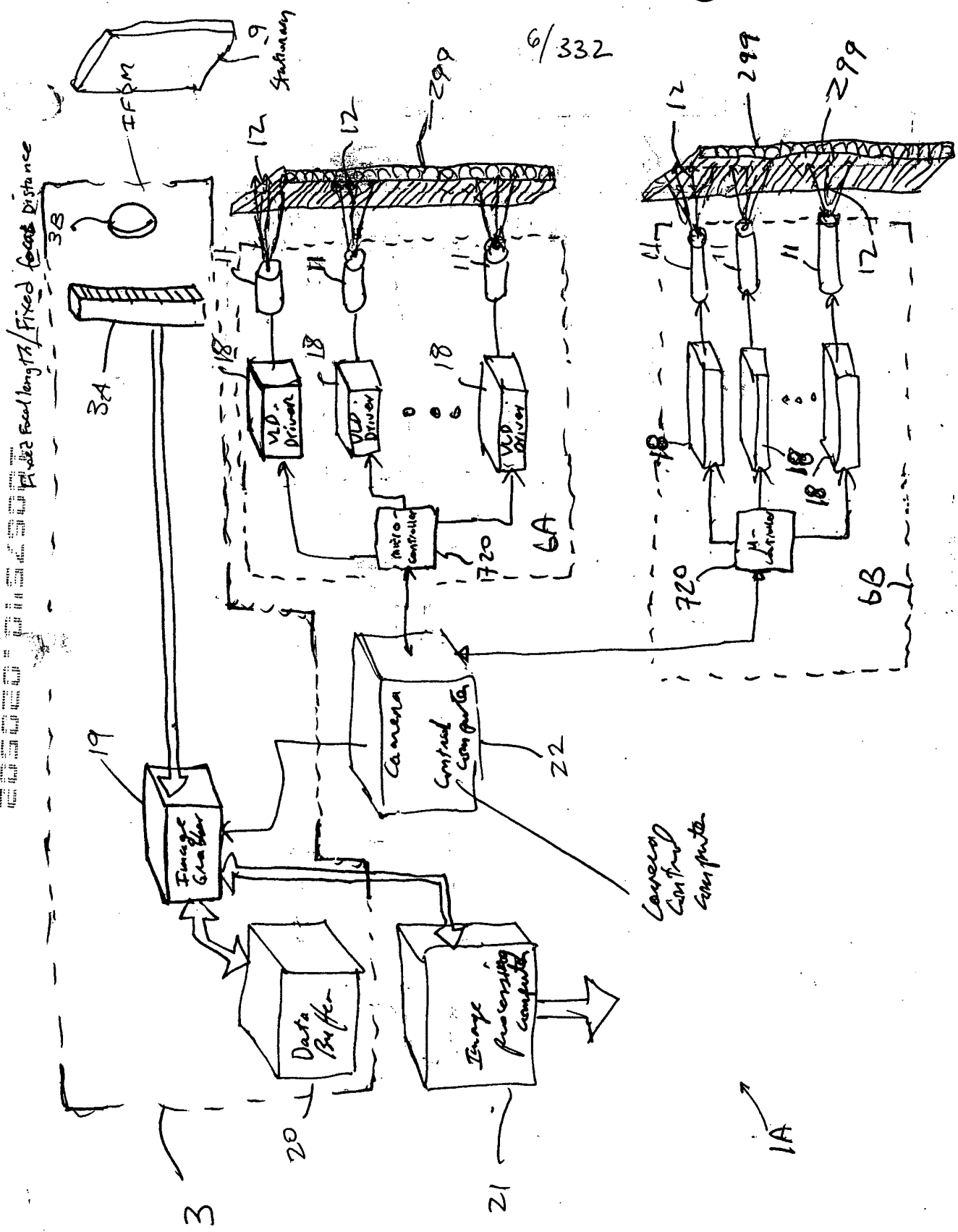
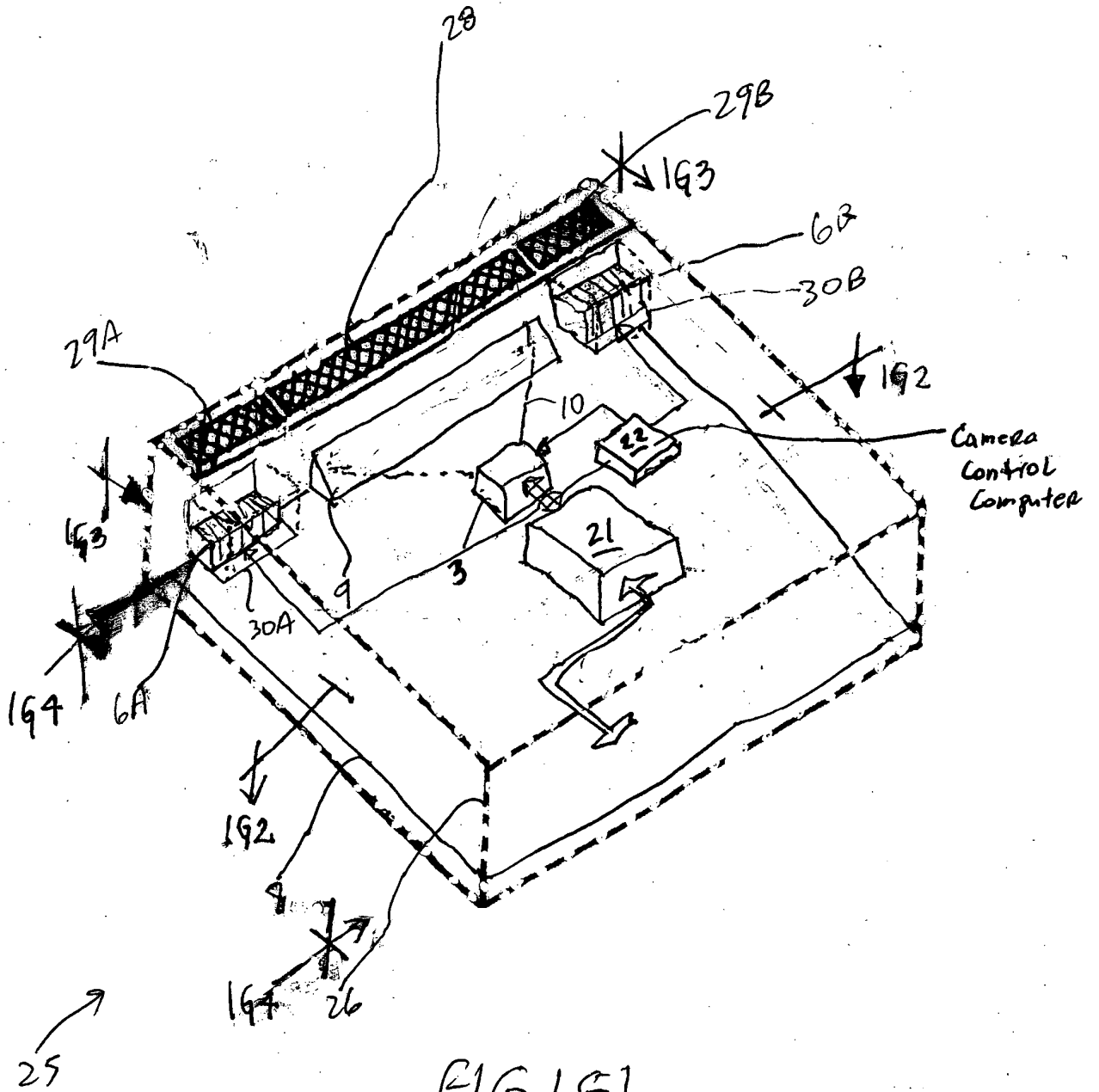


FIG. 1F



8/332

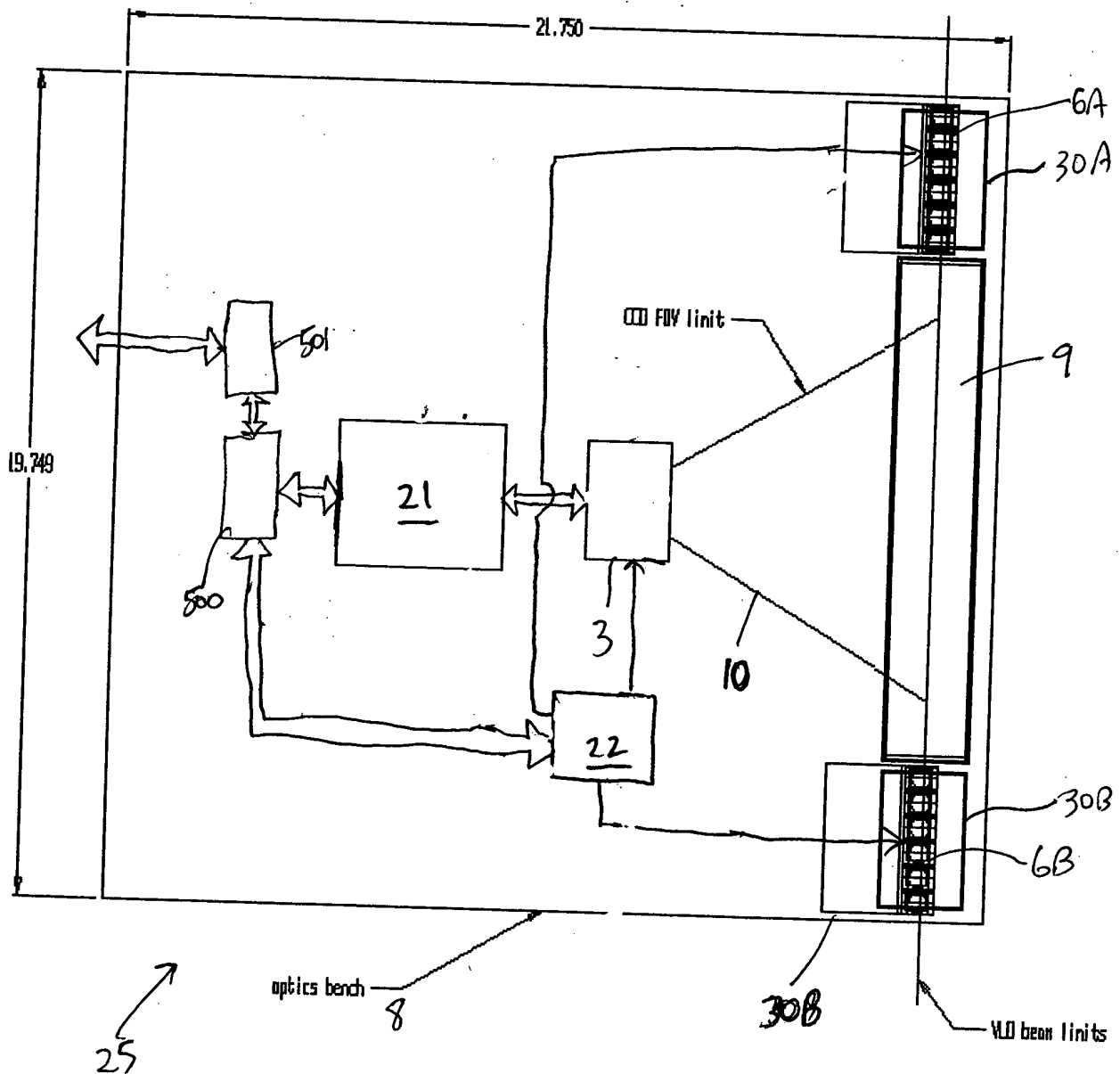


FIG. 142

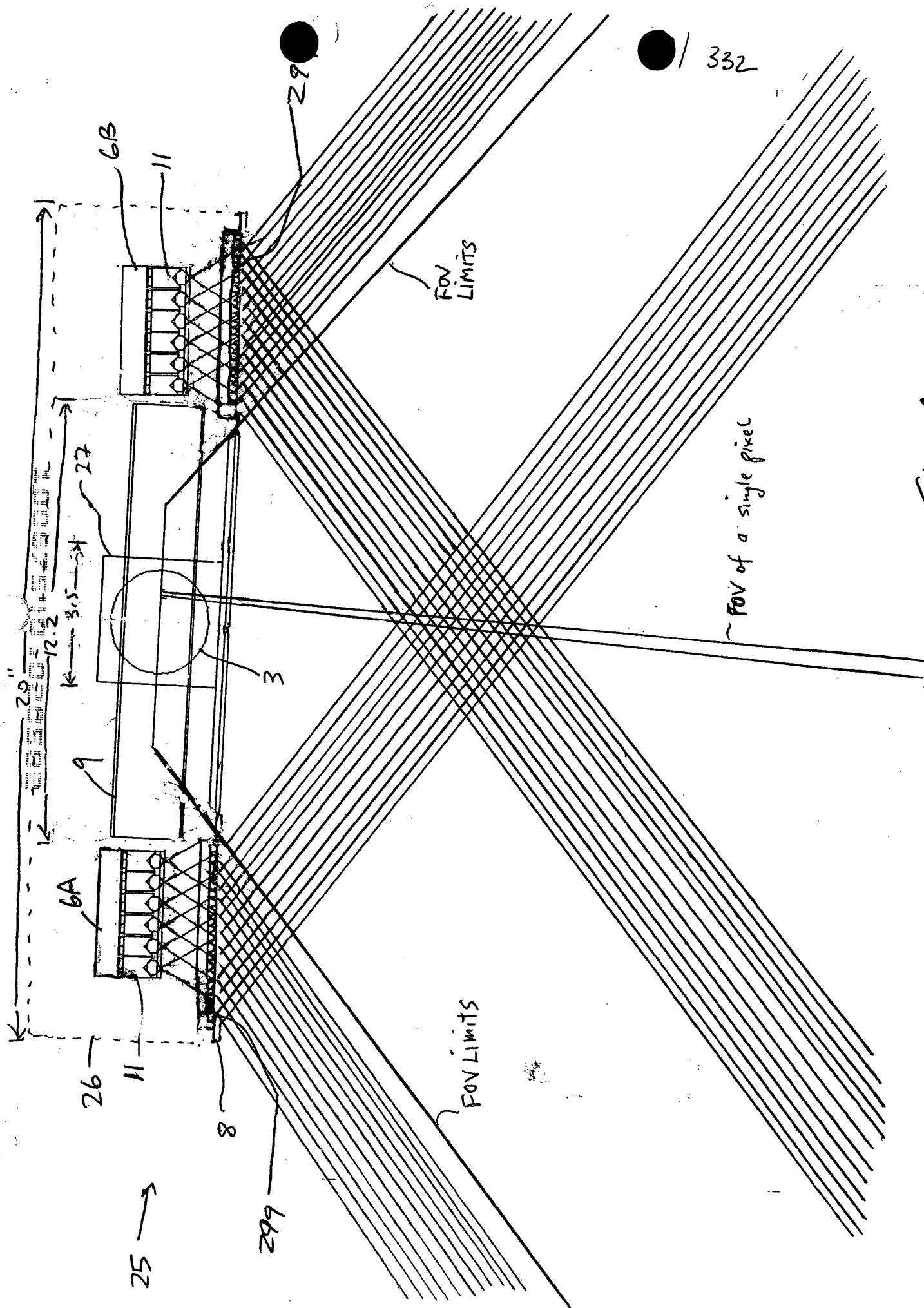


FIG. 1G3

10/ 332

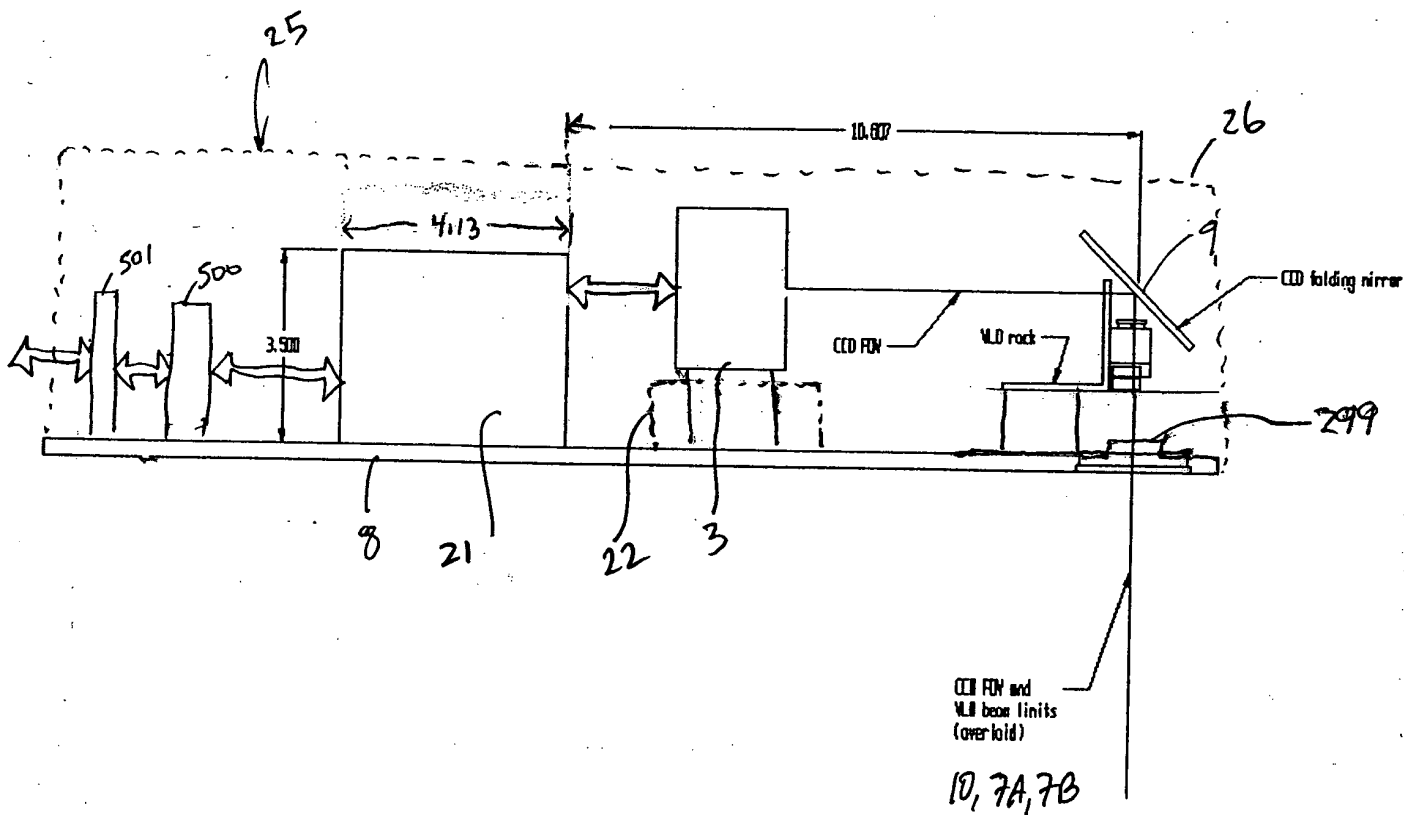
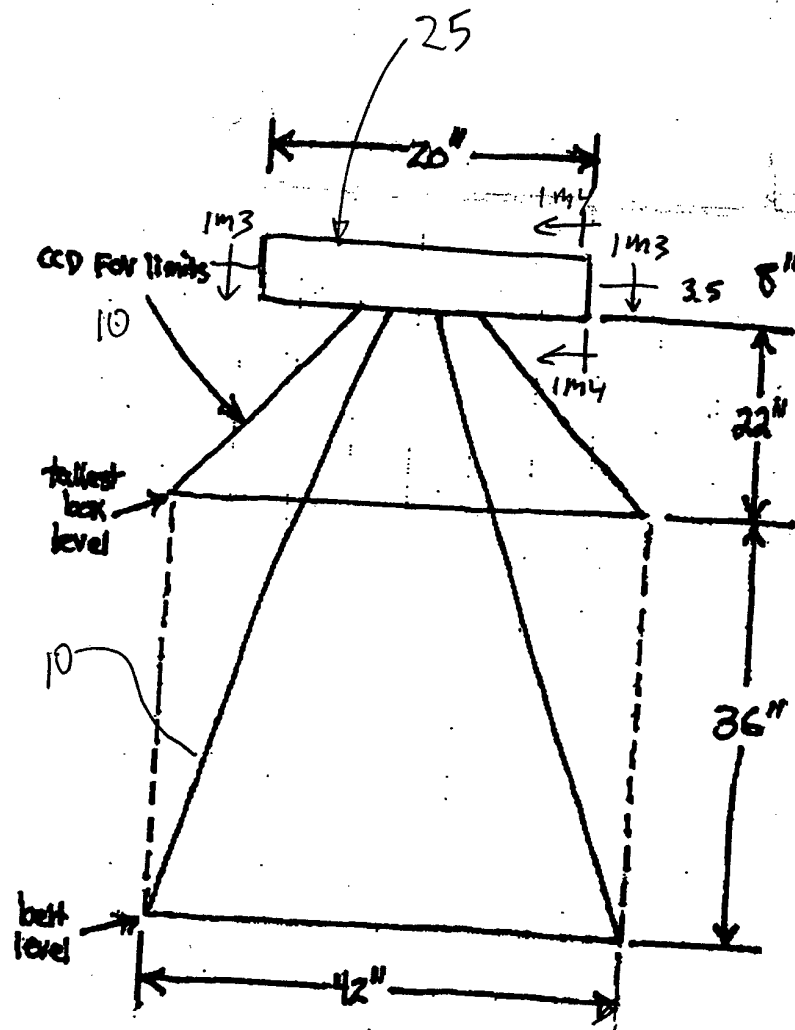


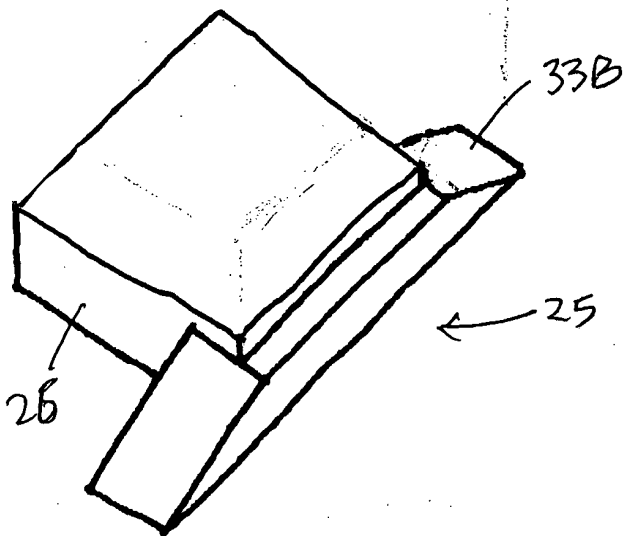
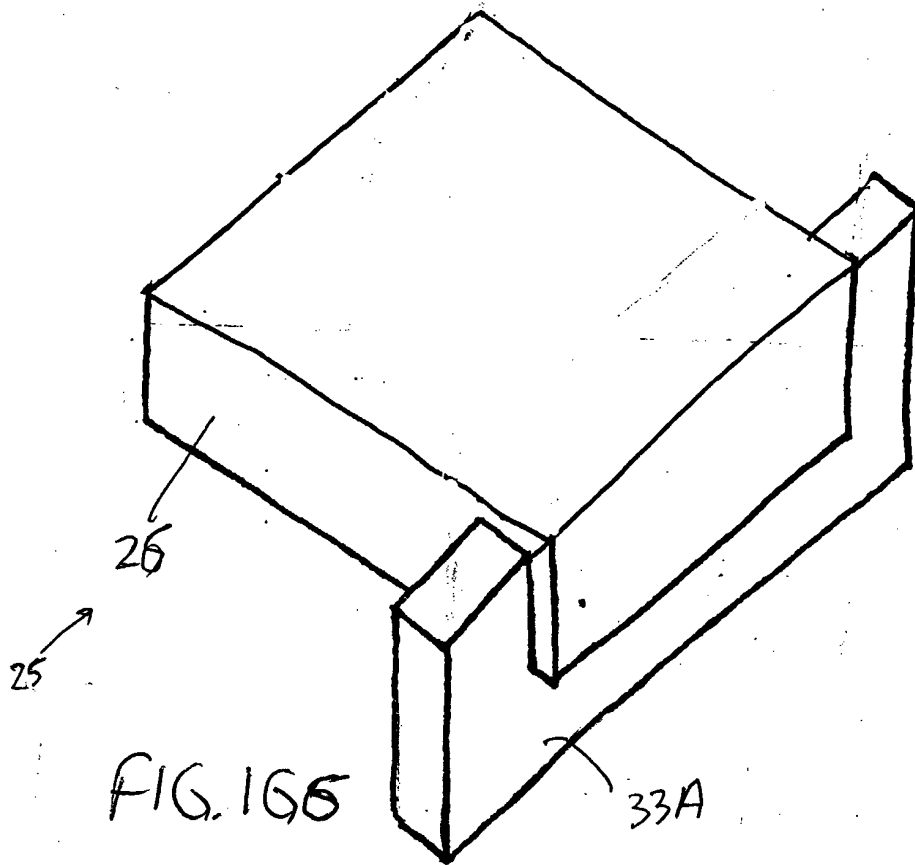
FIG. 164

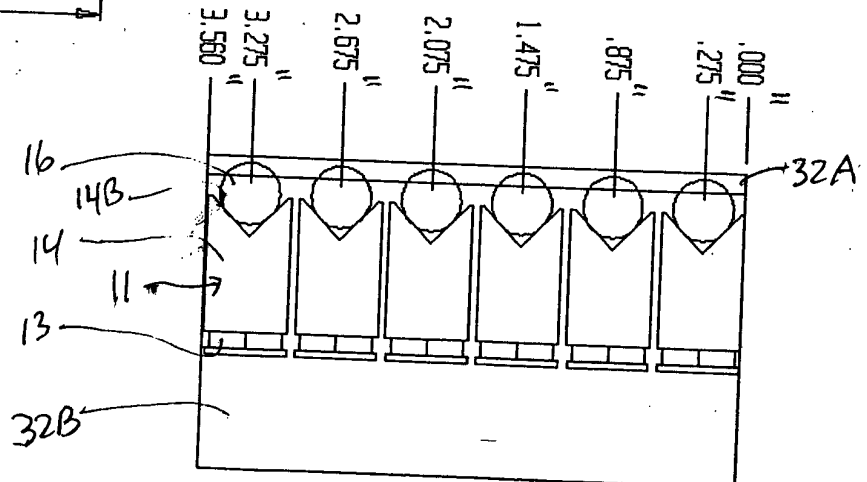
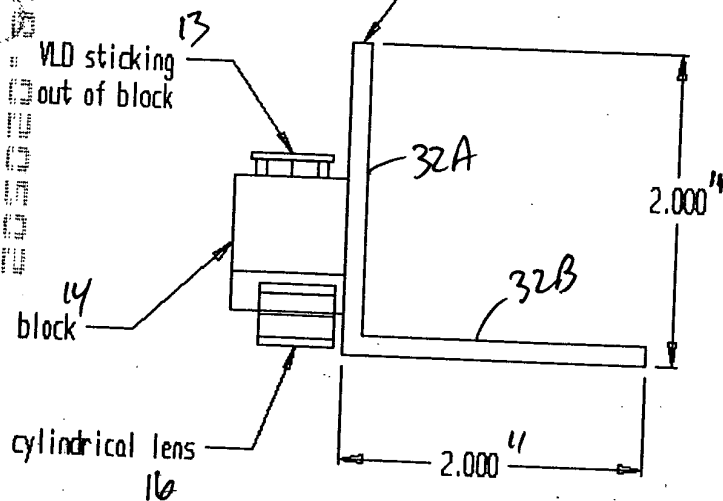
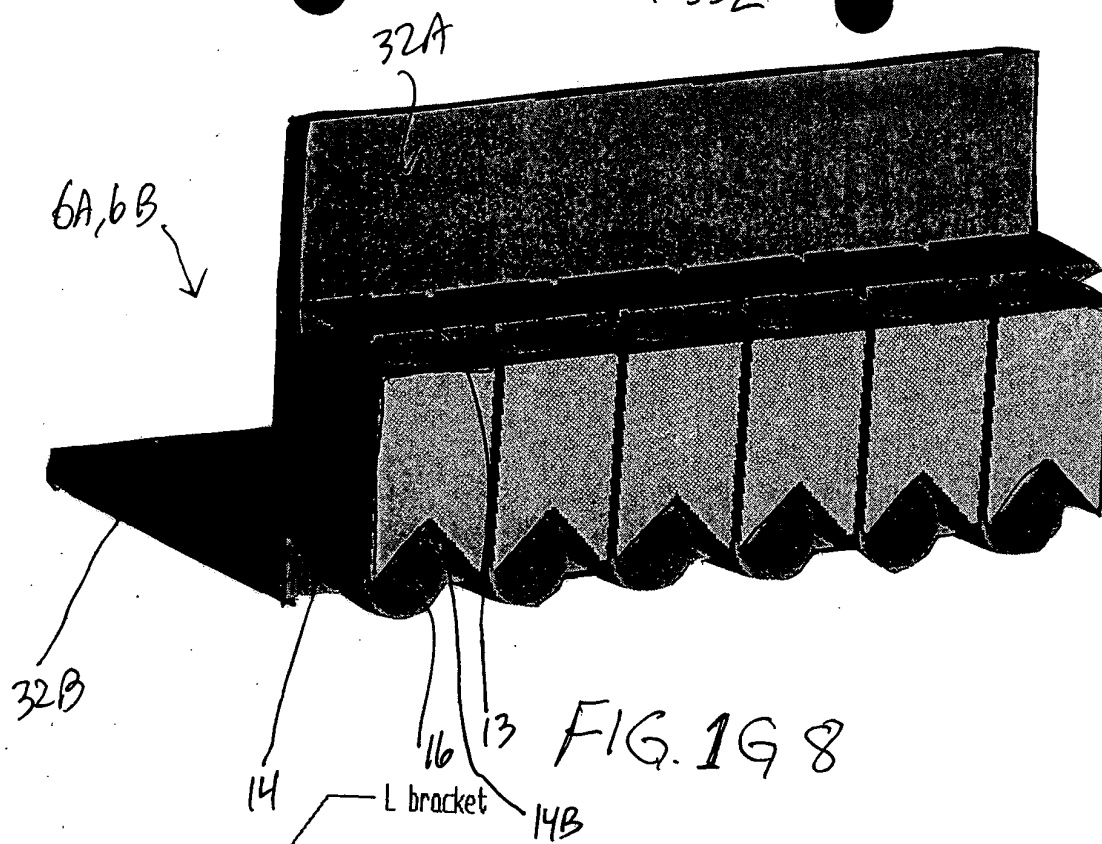
11/332

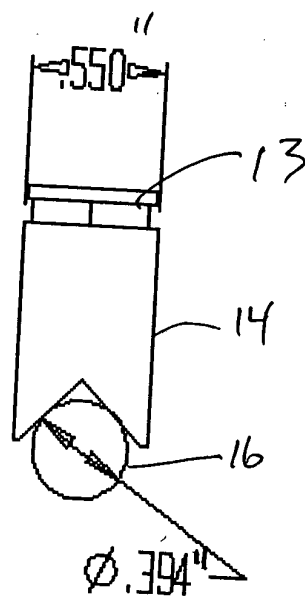
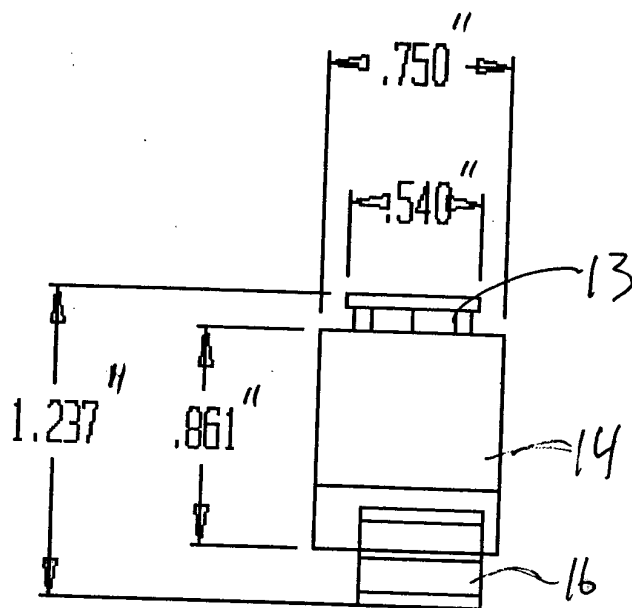


* Fixed Field of Field

FIG. 145







15/ 332

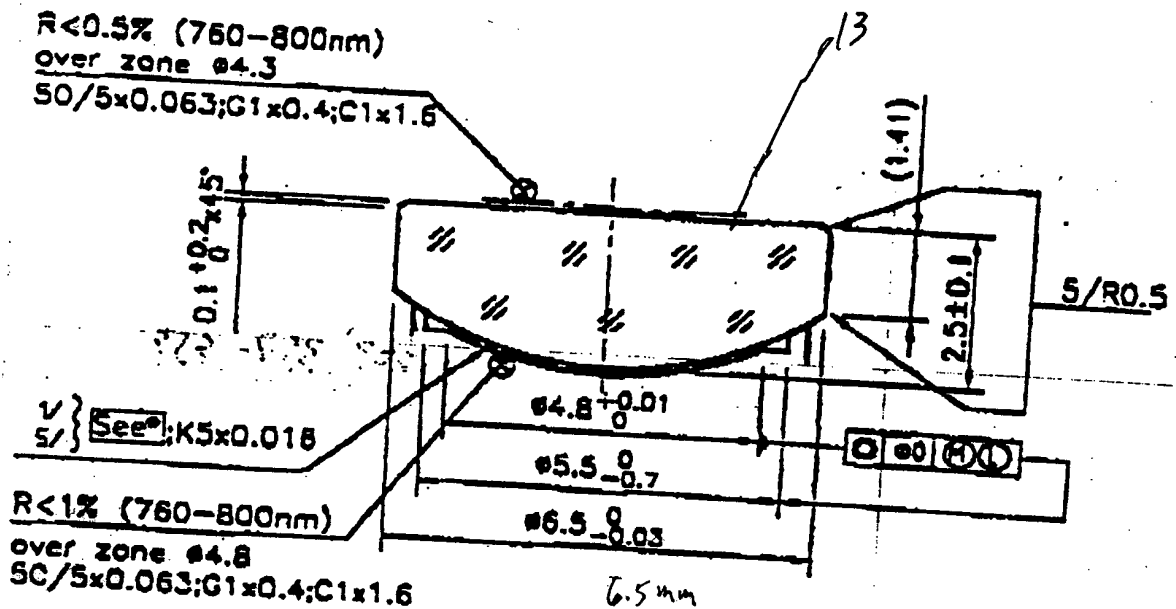


FIG. 1G13

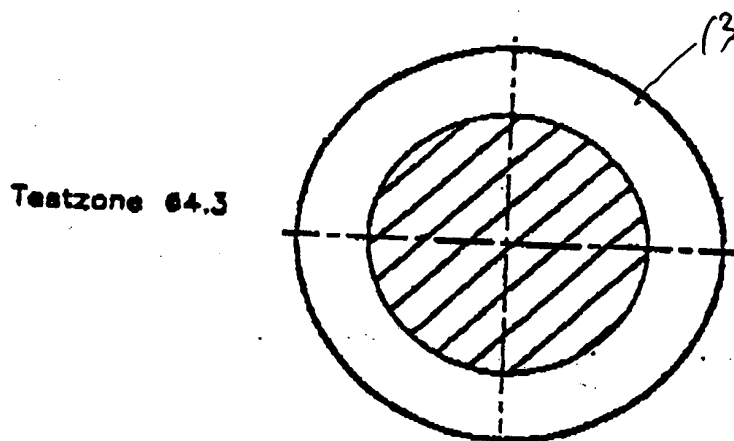


FIG. 1G14

16/ 332

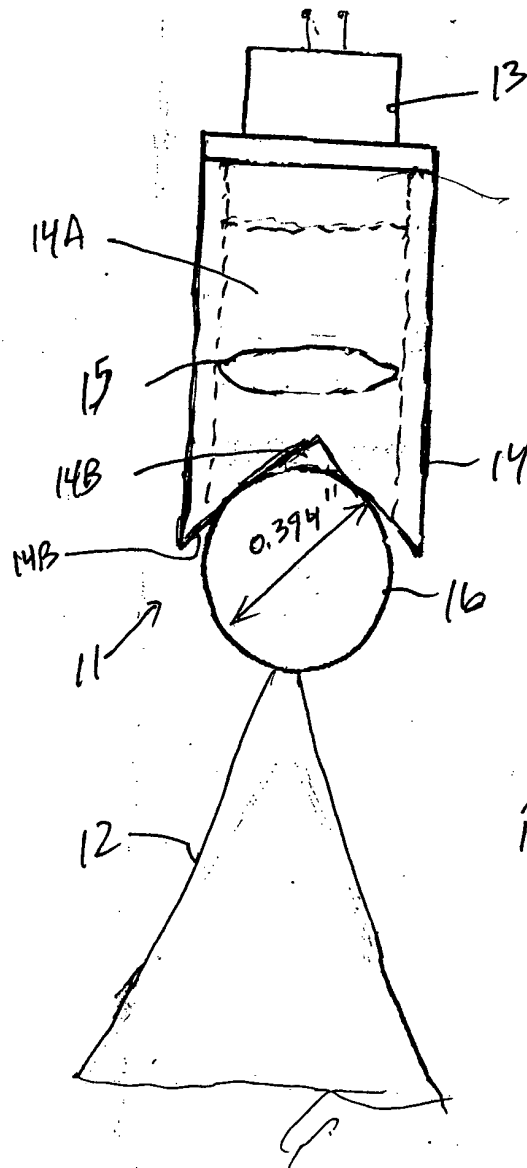


FIG. 1G15A

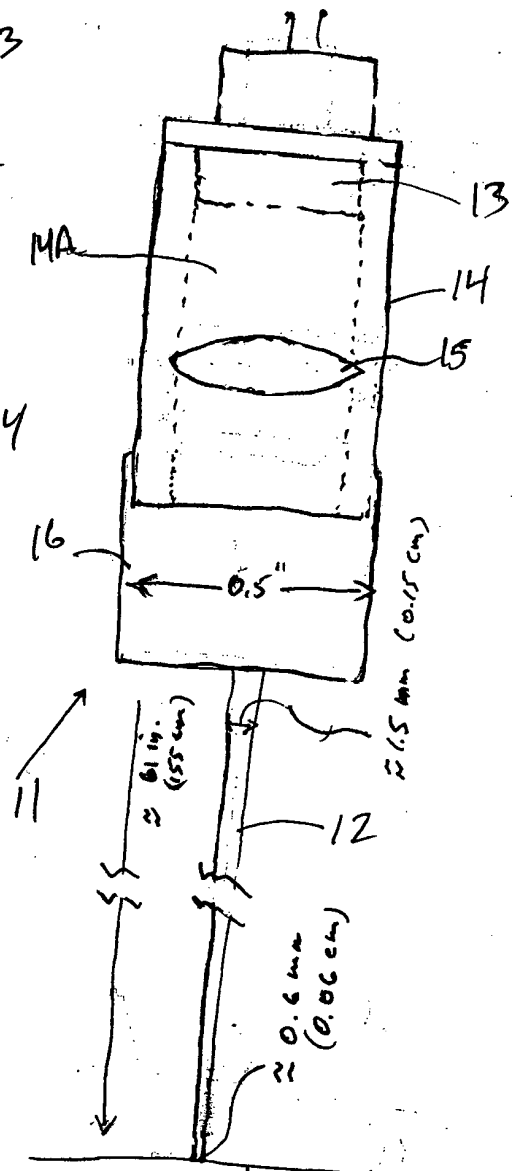


FIG. 1G15B

furthest
object/working
distance

17/ 332

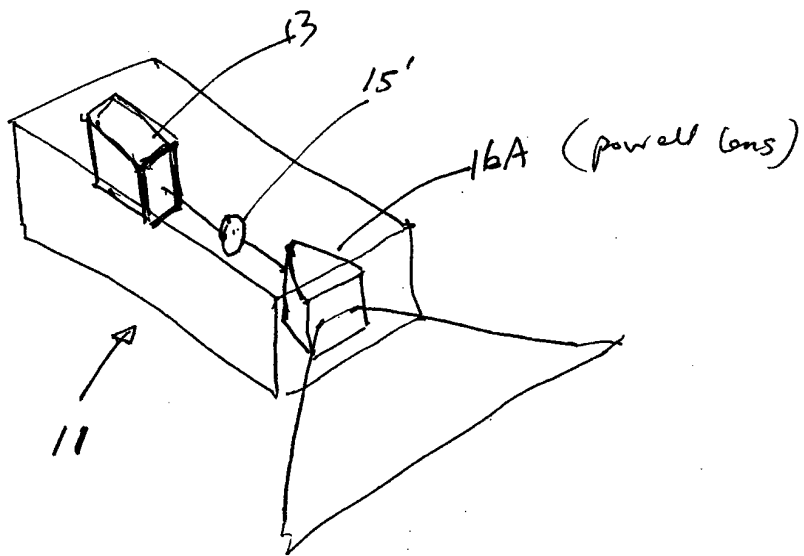


FIG. 1G.16A

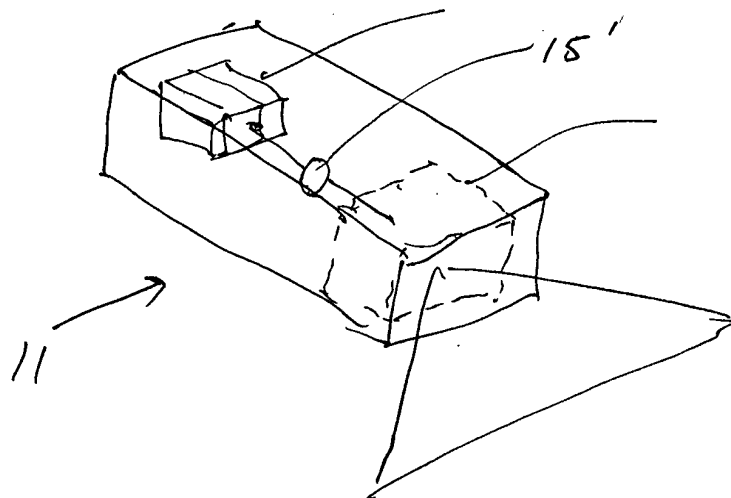


FIG. 1G.16B

PLIM w/
powell lens

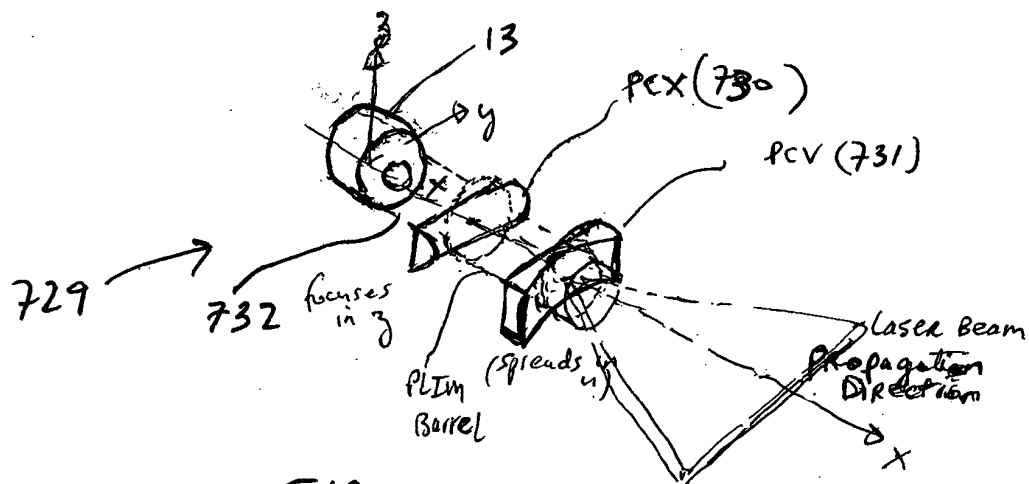


FIG. 16.17A

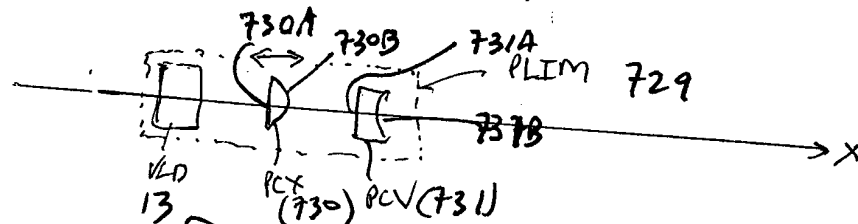


FIG. 16.17B

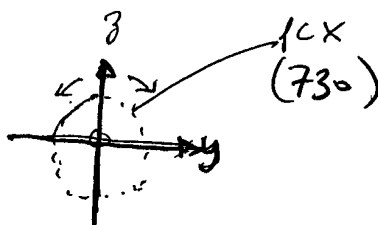


FIG. 16.17C

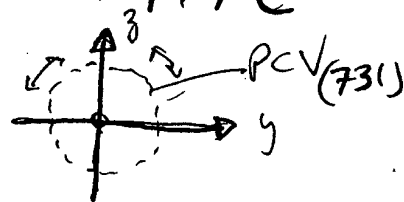


FIG. 16.17D

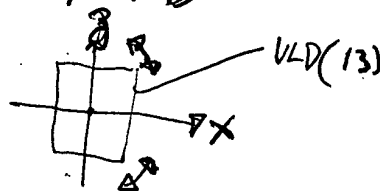


FIG. 16.17E

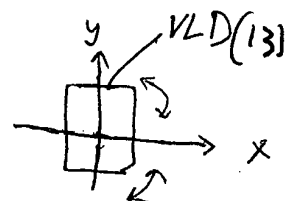


FIG. 16.17F

19/ 332

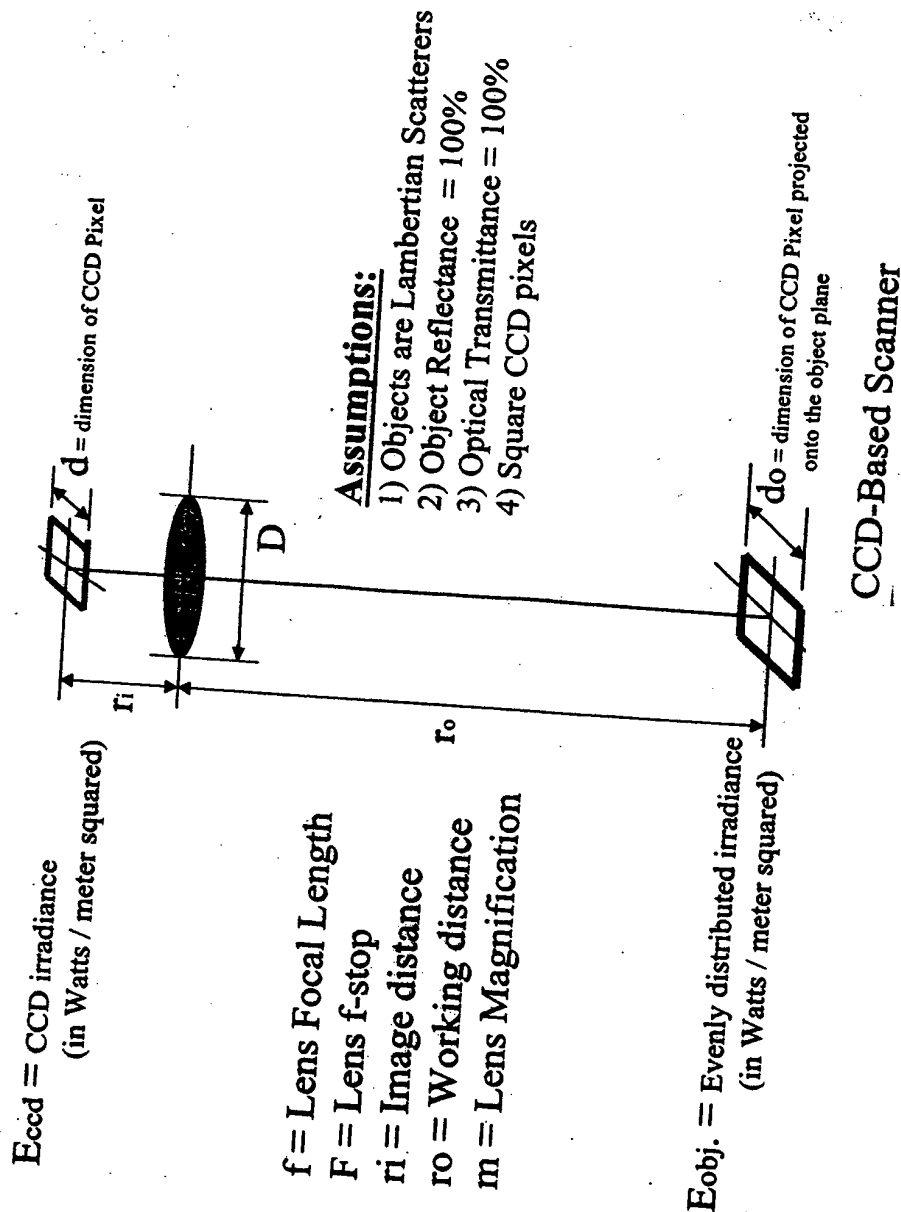


FIG. 146

FIRST GENERALIZED METHOD
of Reducing Speckle-Noise
PATTERNS AT IMAGE
DETECTION array OF THE
FPD subsystem (3)

12

(SPMF)

of Reducing Speckle-
PATTERNS AT Image
Detection array of
FPD Subsystem
(SPMF)

12

FOV(10)

MOVING BAR CODE
STRUCTURE

4

7A

7B

6A

3

6B

8

5

FIG. 111

The First Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial phase of the transmitted PLIB along the planar extent thereof according to a spatial phase modulation function (SPMF) so as to produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the power of the speckle-noise pattern observed at the image detection array.

FIG. 1I2B

23/ 332

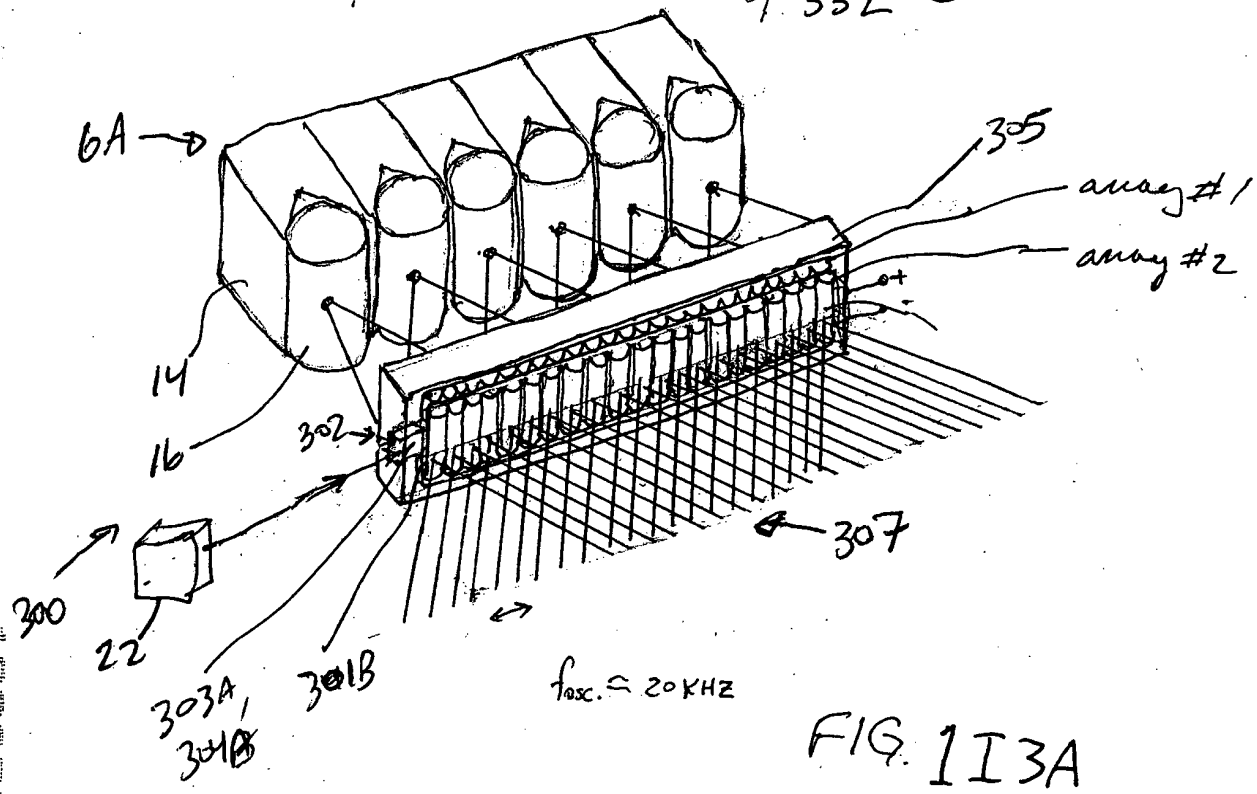


FIG. 1I3A

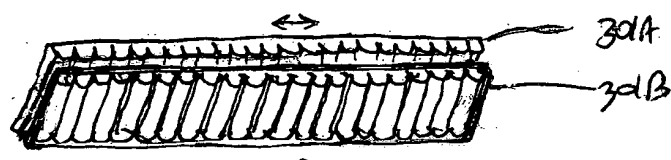


FIG. 1I3B

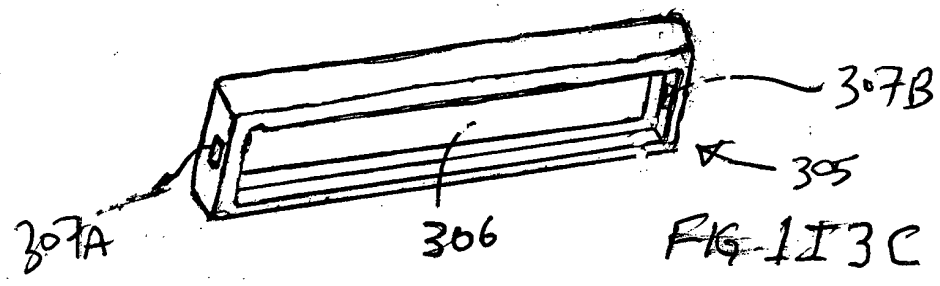


FIG. 1I3C

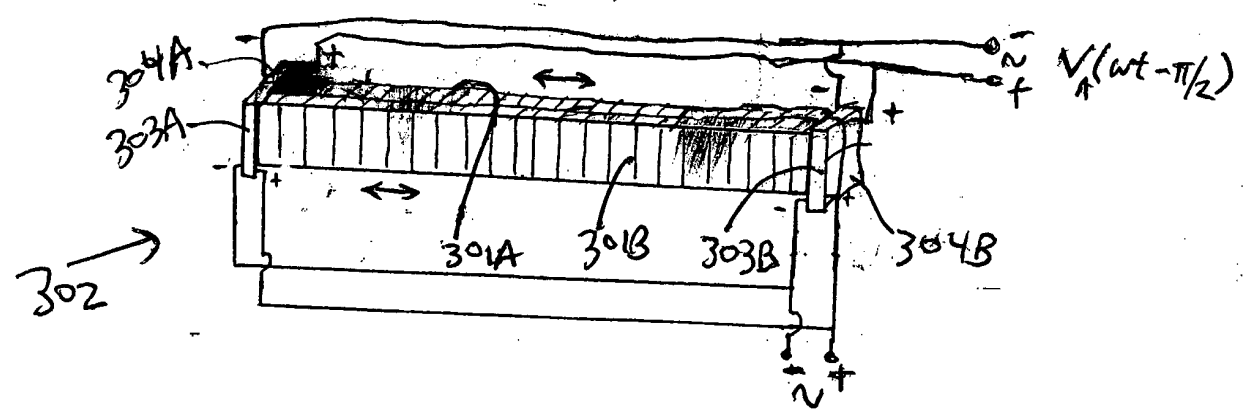
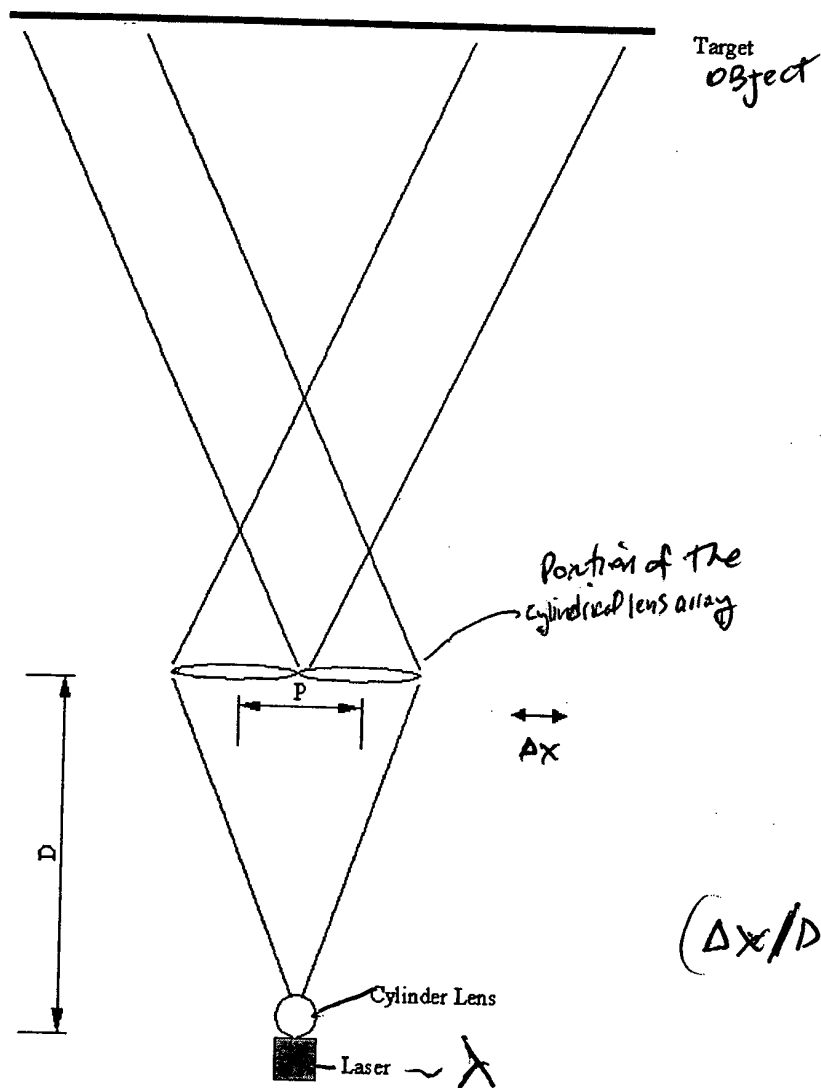


FIG. 1I3D

24/ 332



$$(\Delta x / D) P = \lambda$$

Figure 1

$$\Delta x \geq \frac{\lambda \cdot D}{P}$$

FIG. 1I3E

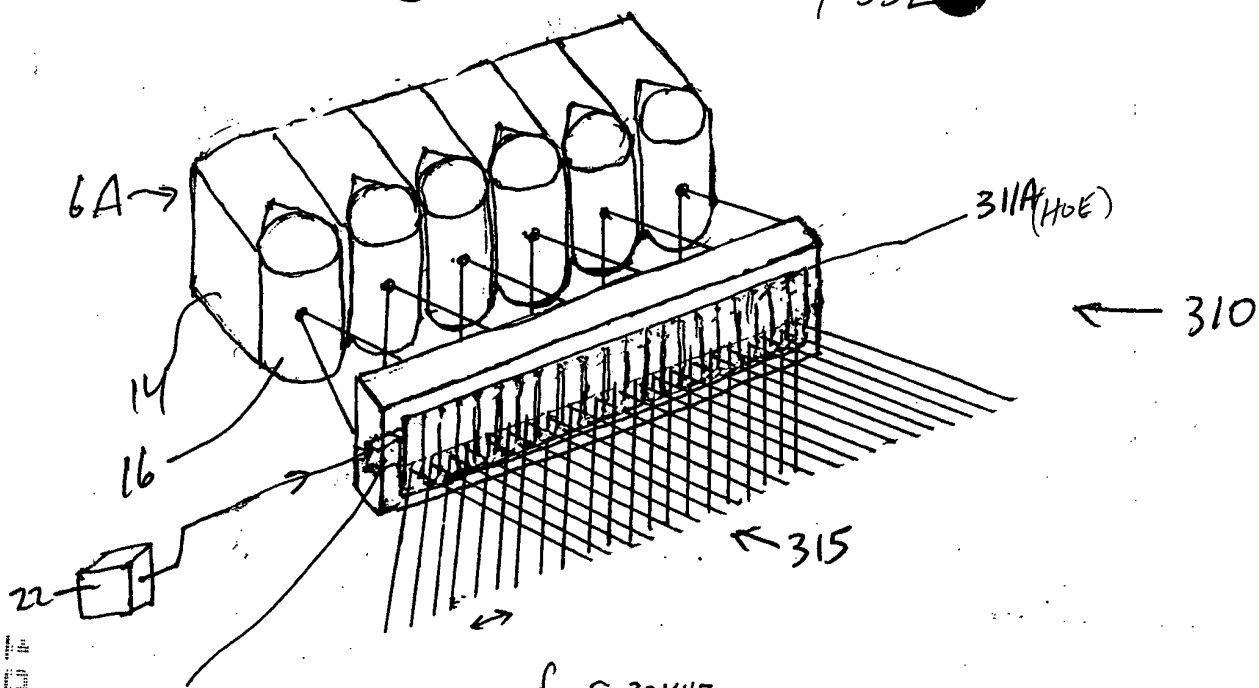
25/ 332



FIG. 1I3F



FIG 1I3G



$f_{osc} \approx 20 \text{ KHZ}$

FIG. 1I4A

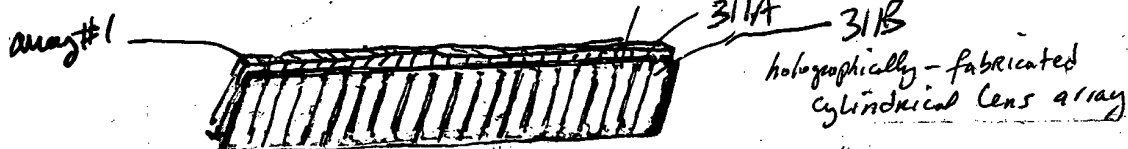


FIG. 1I4B

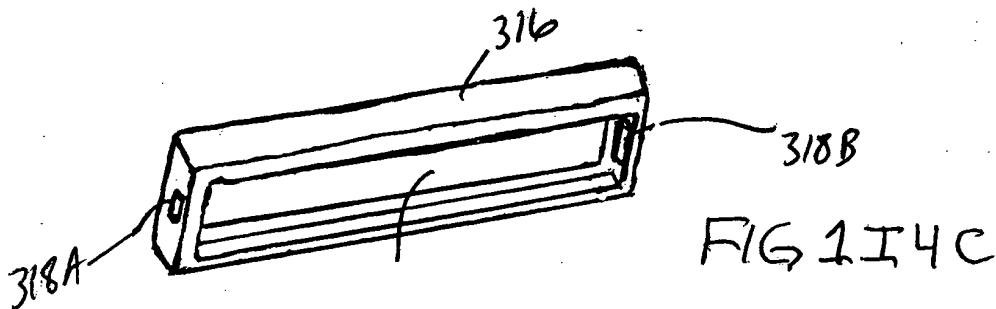


FIG. 1I4C

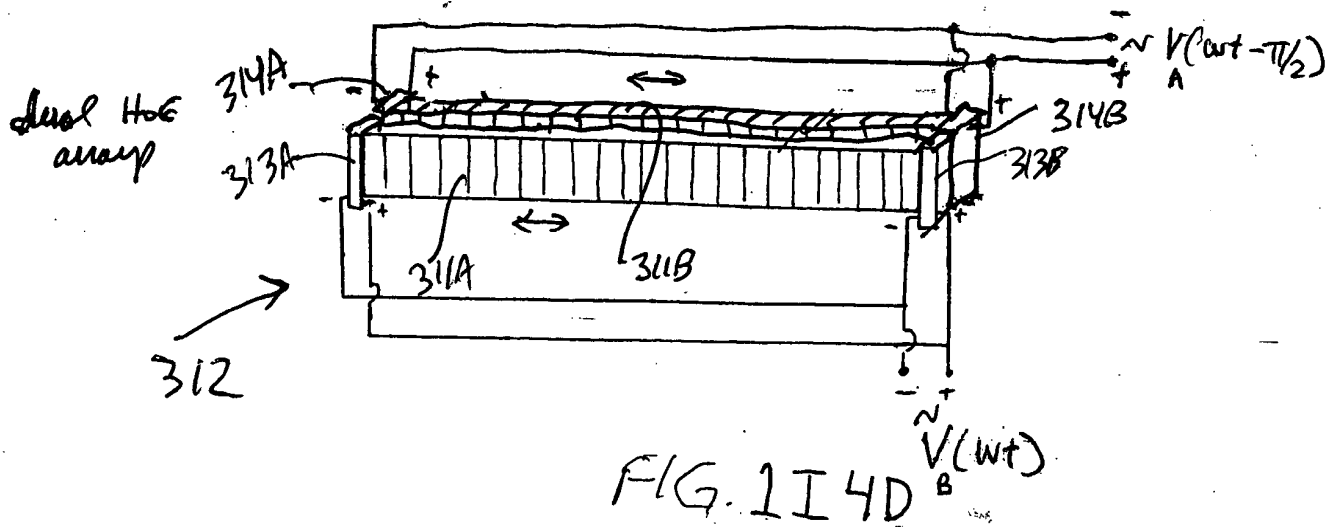


FIG. 1I4D

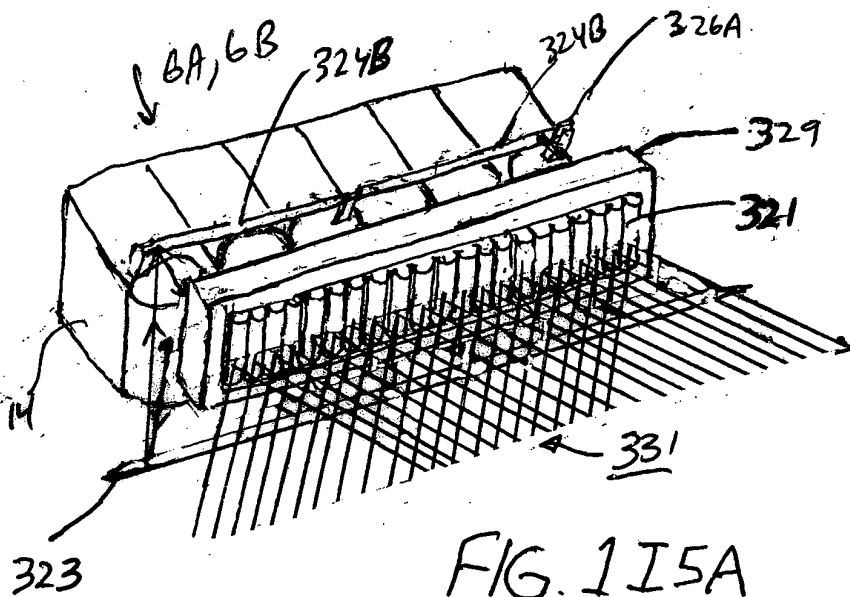


FIG. 1I5A

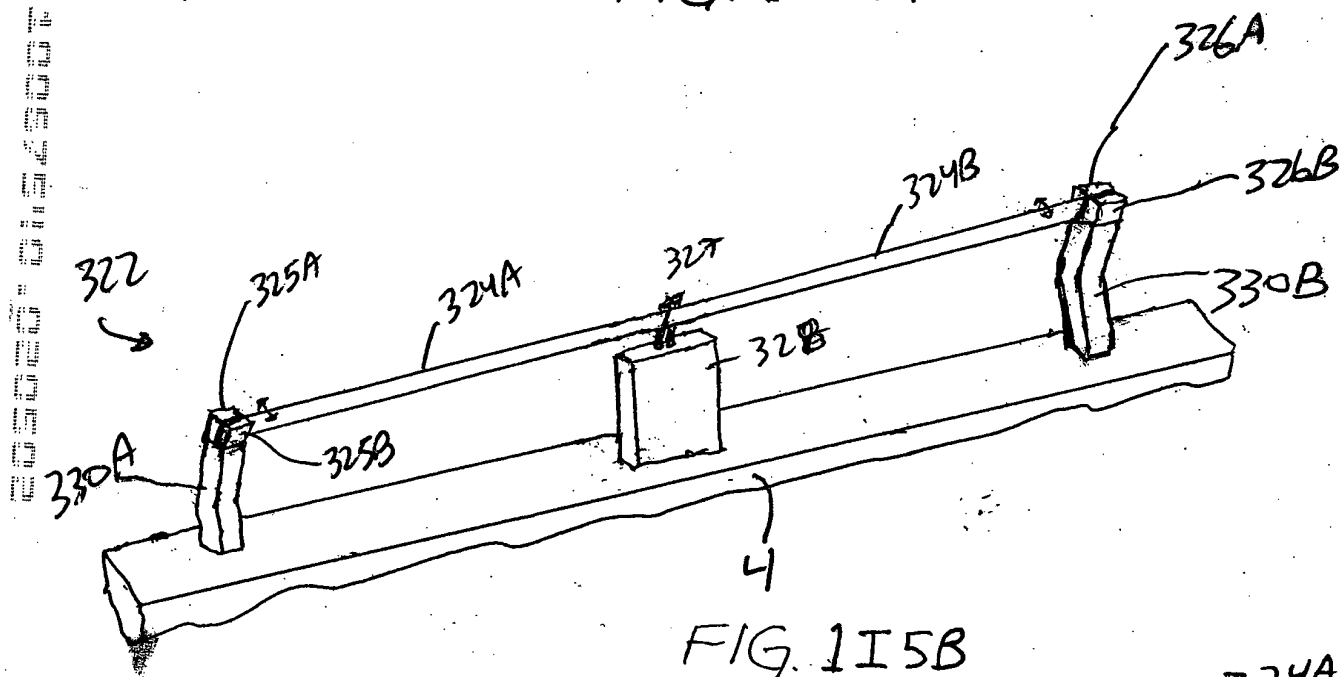


FIG. 1I5B

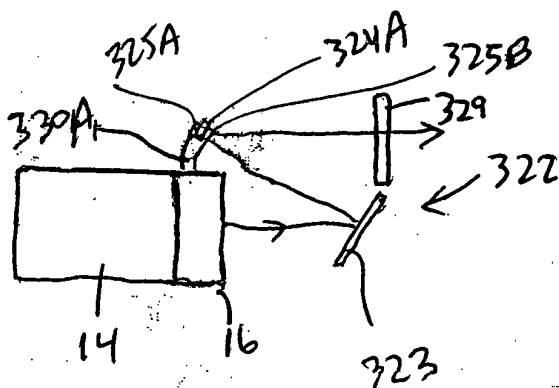


FIG. 1I5C

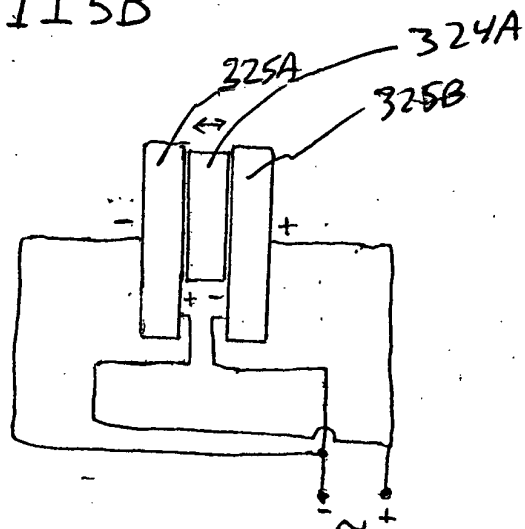
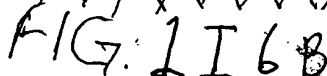
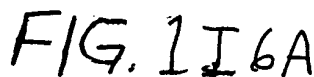
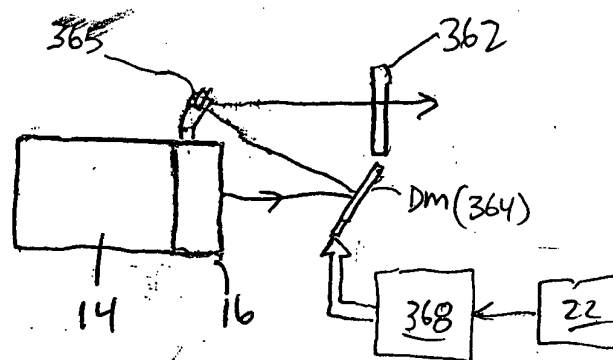
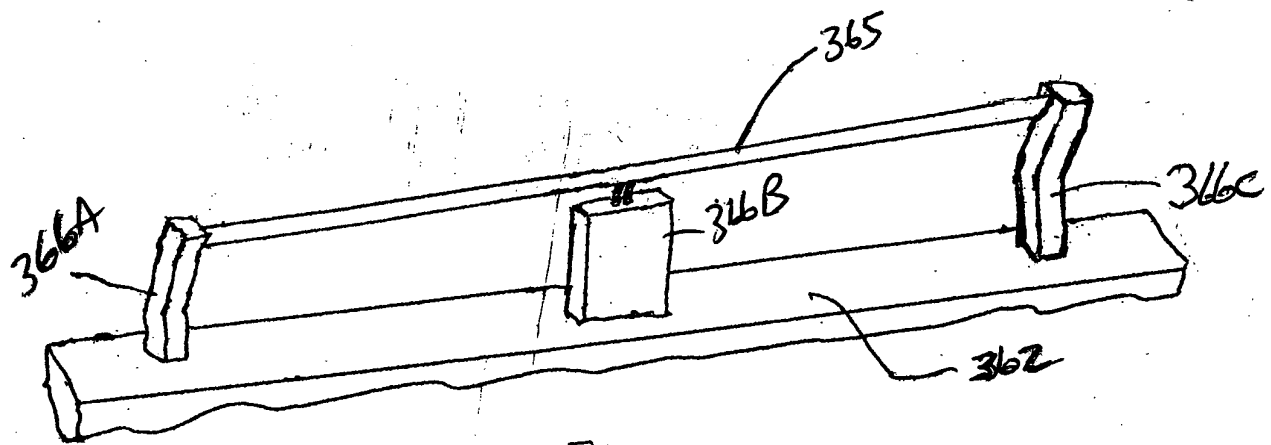
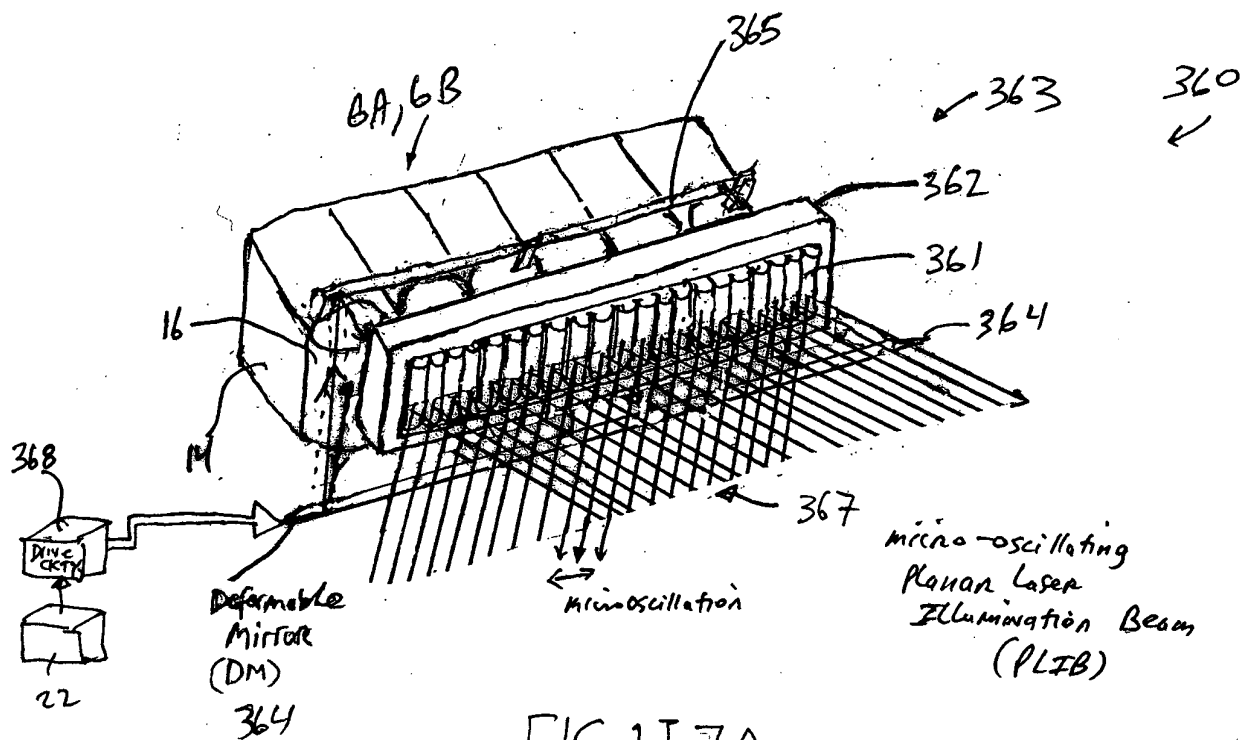
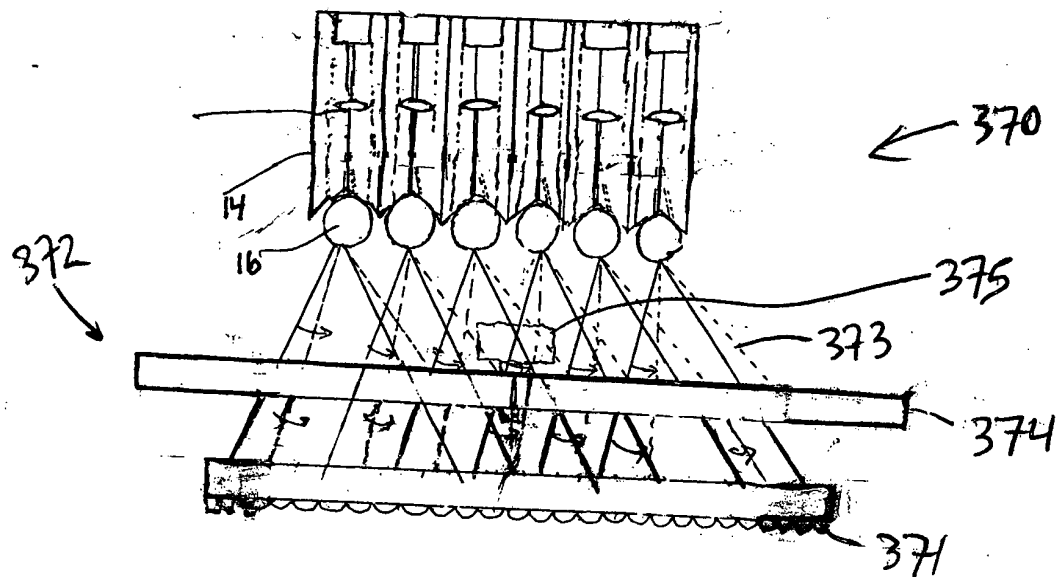
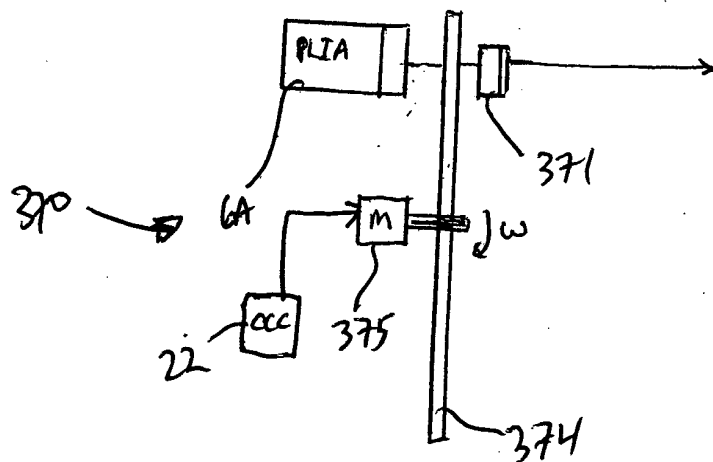
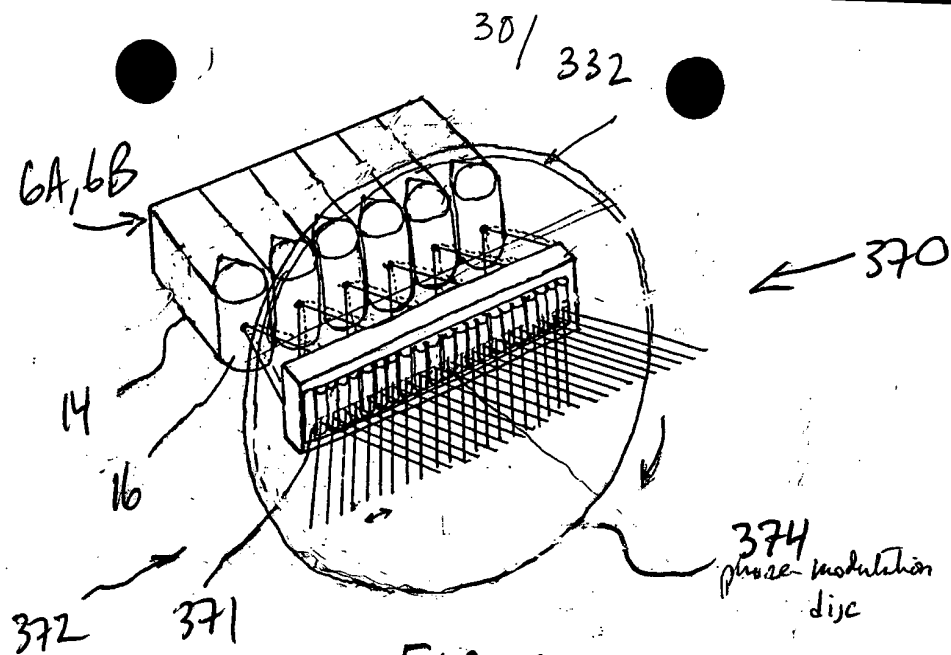


FIG. 1I5D







31/332

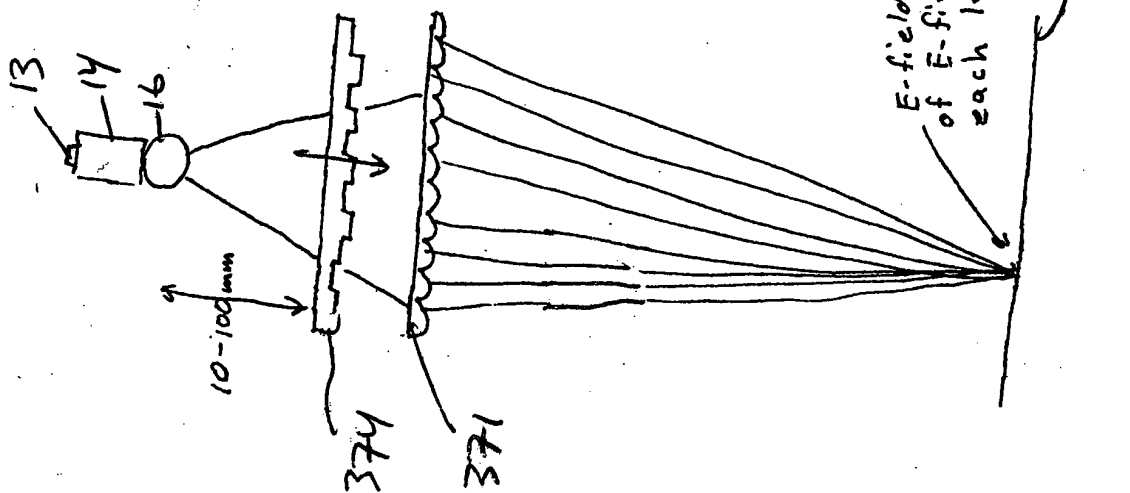


FIG 1I8E

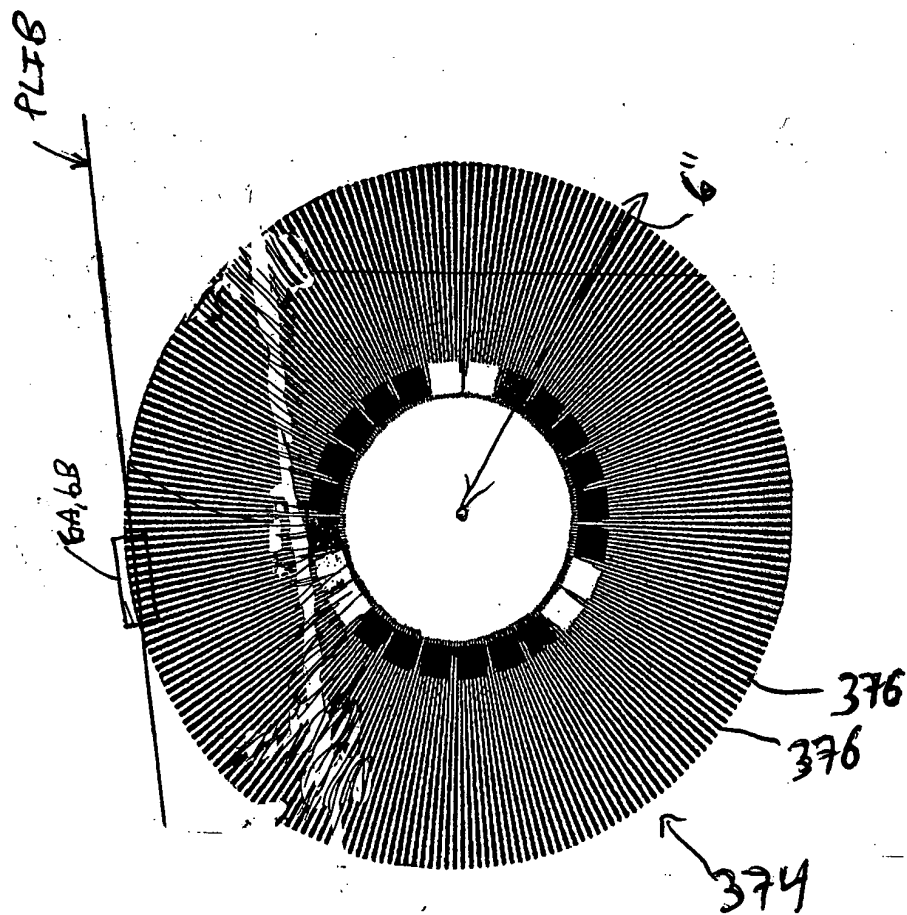
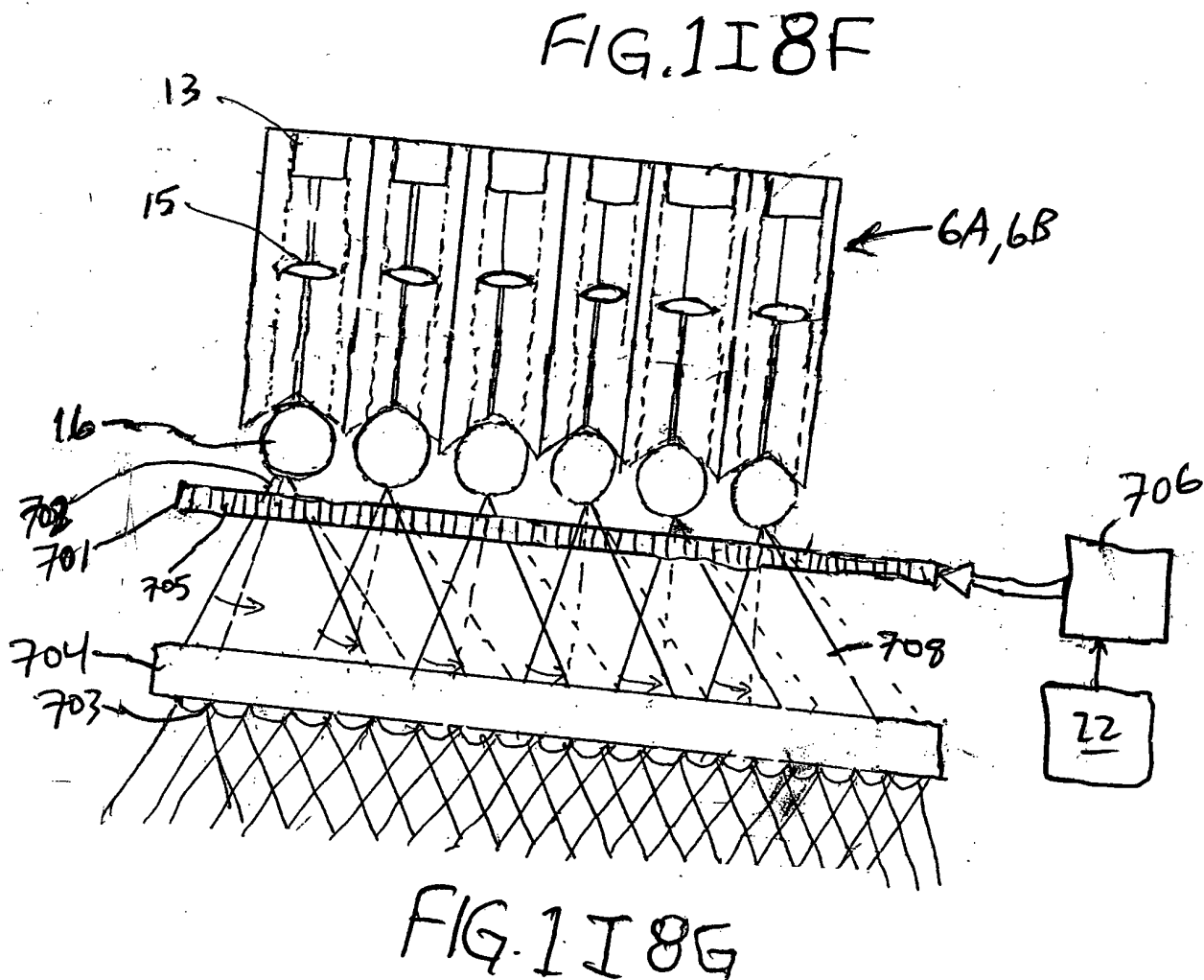
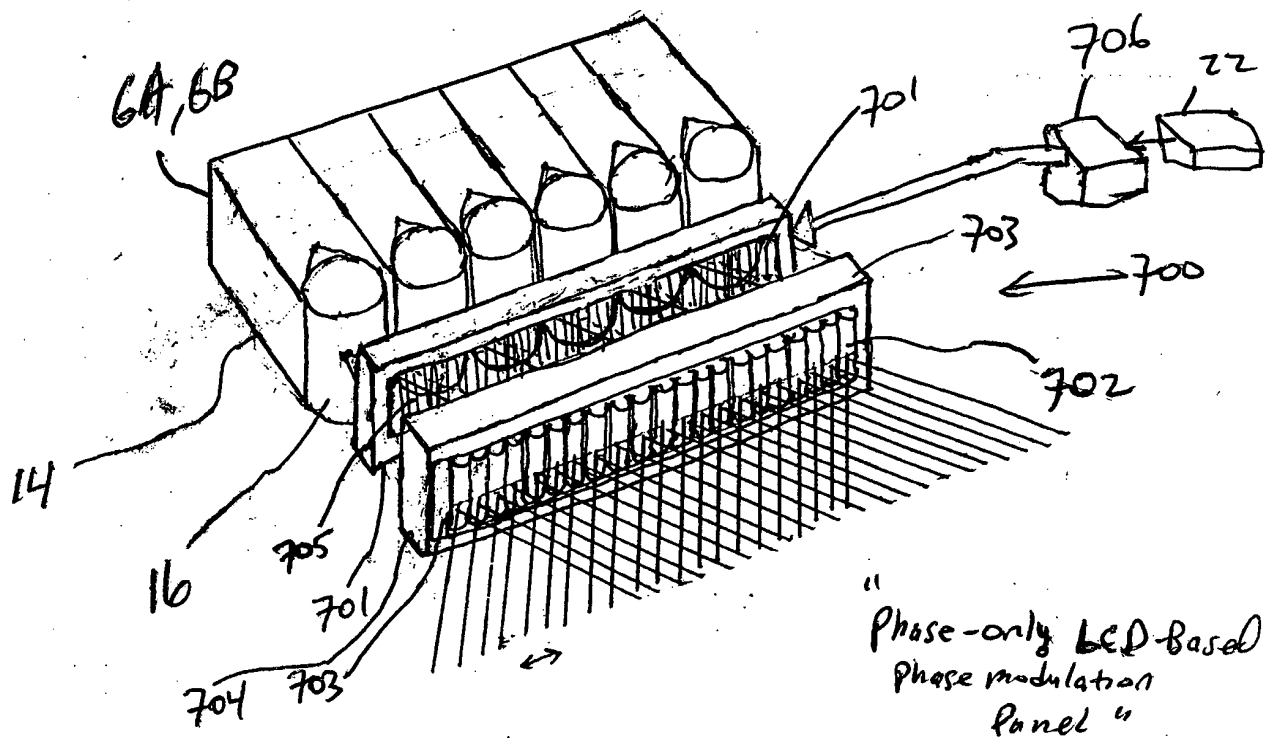


FIG 1I8D



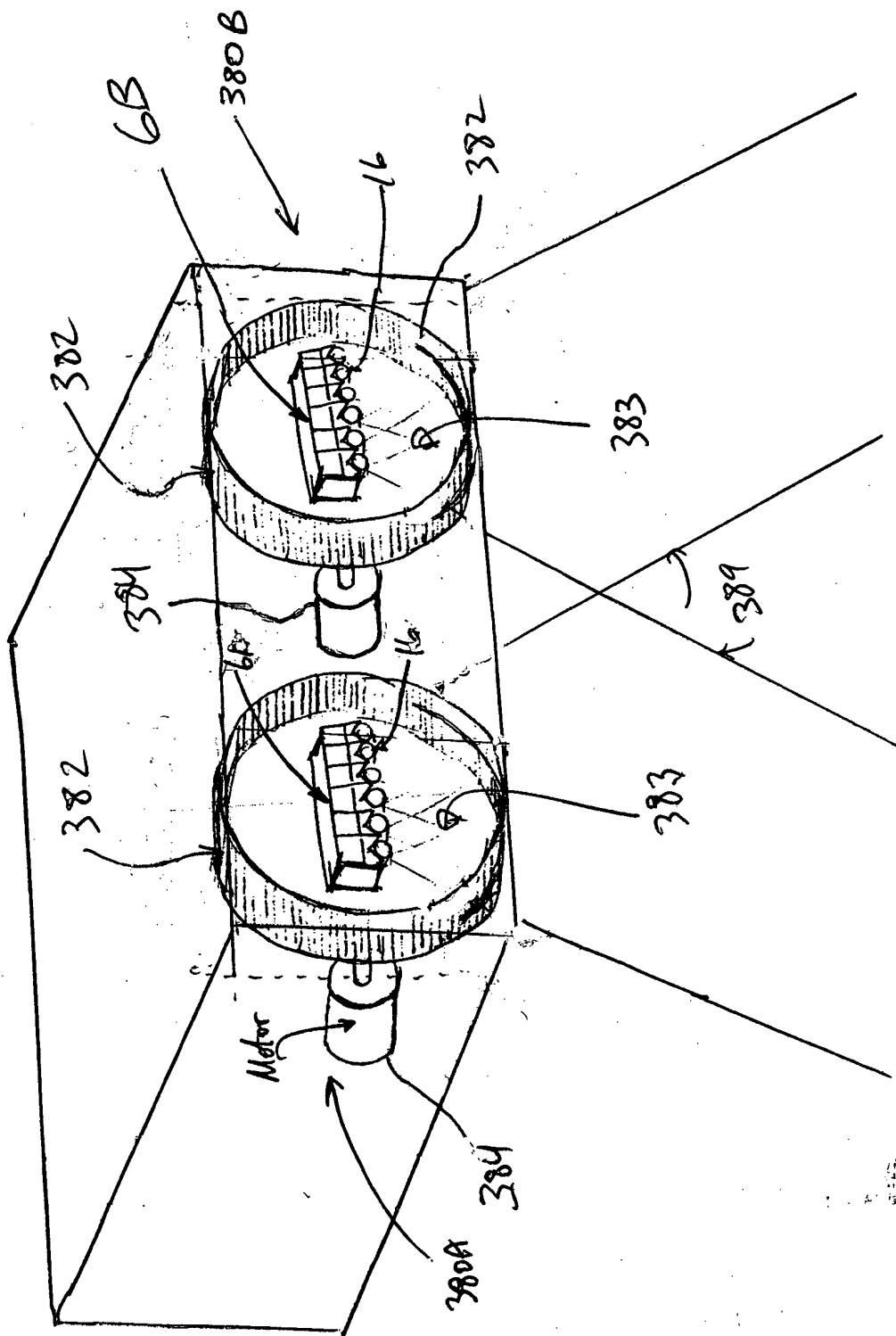


FIG. 1I 9A

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34/ 33

Optical specifications:

- 30 cylindrical lens (lenses) per linear inch
- focal length: 2.0 millimeters
- diameter of cylindrical carousel ≈ 4 inches
- acrylic material

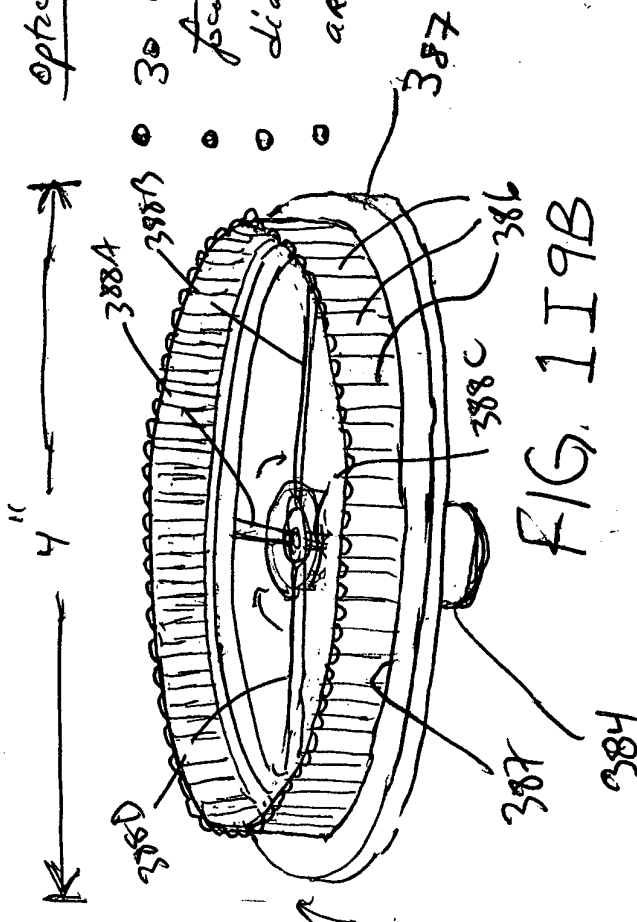


FIG. 1I9B

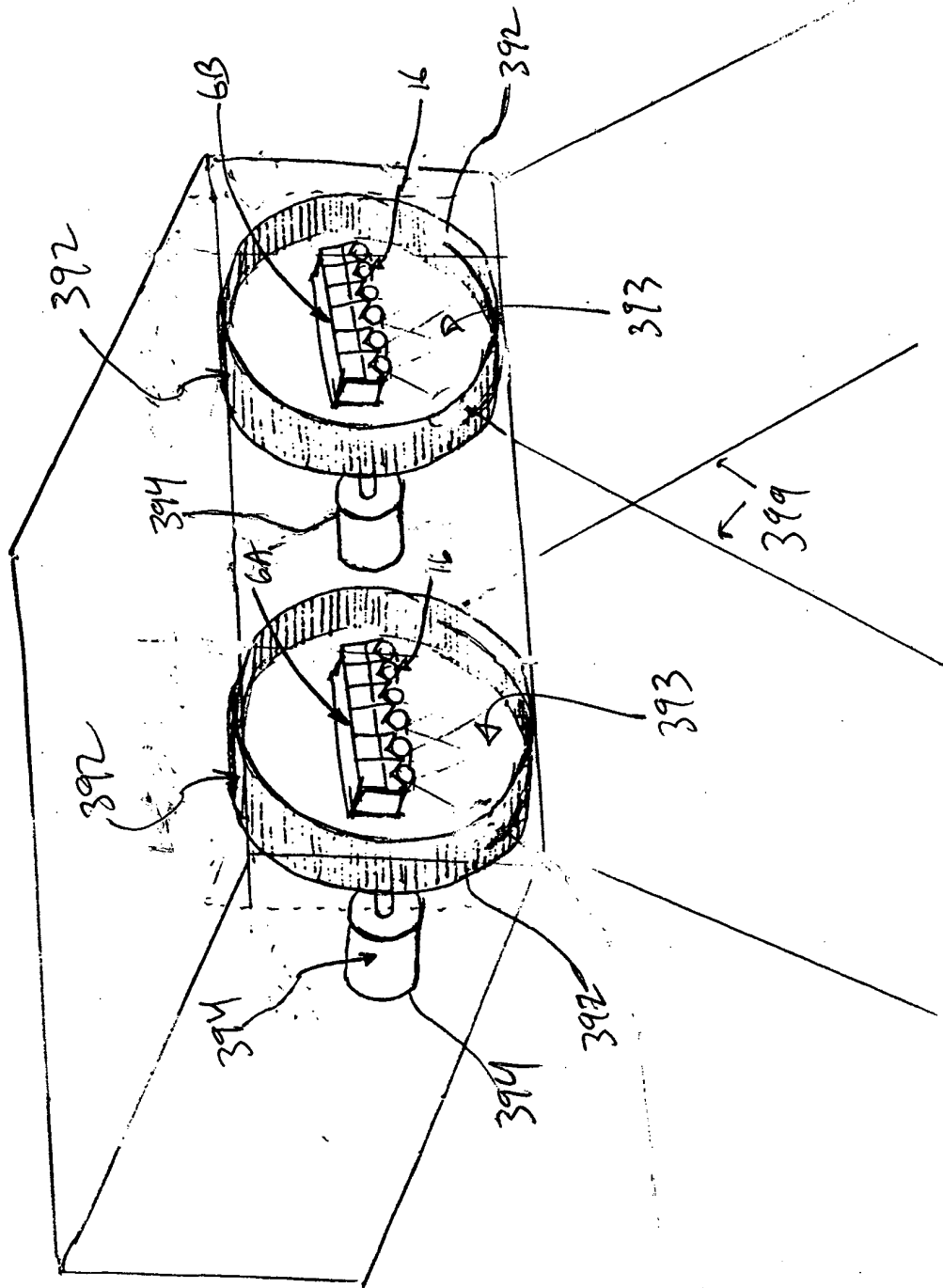


FIG. 1I10A

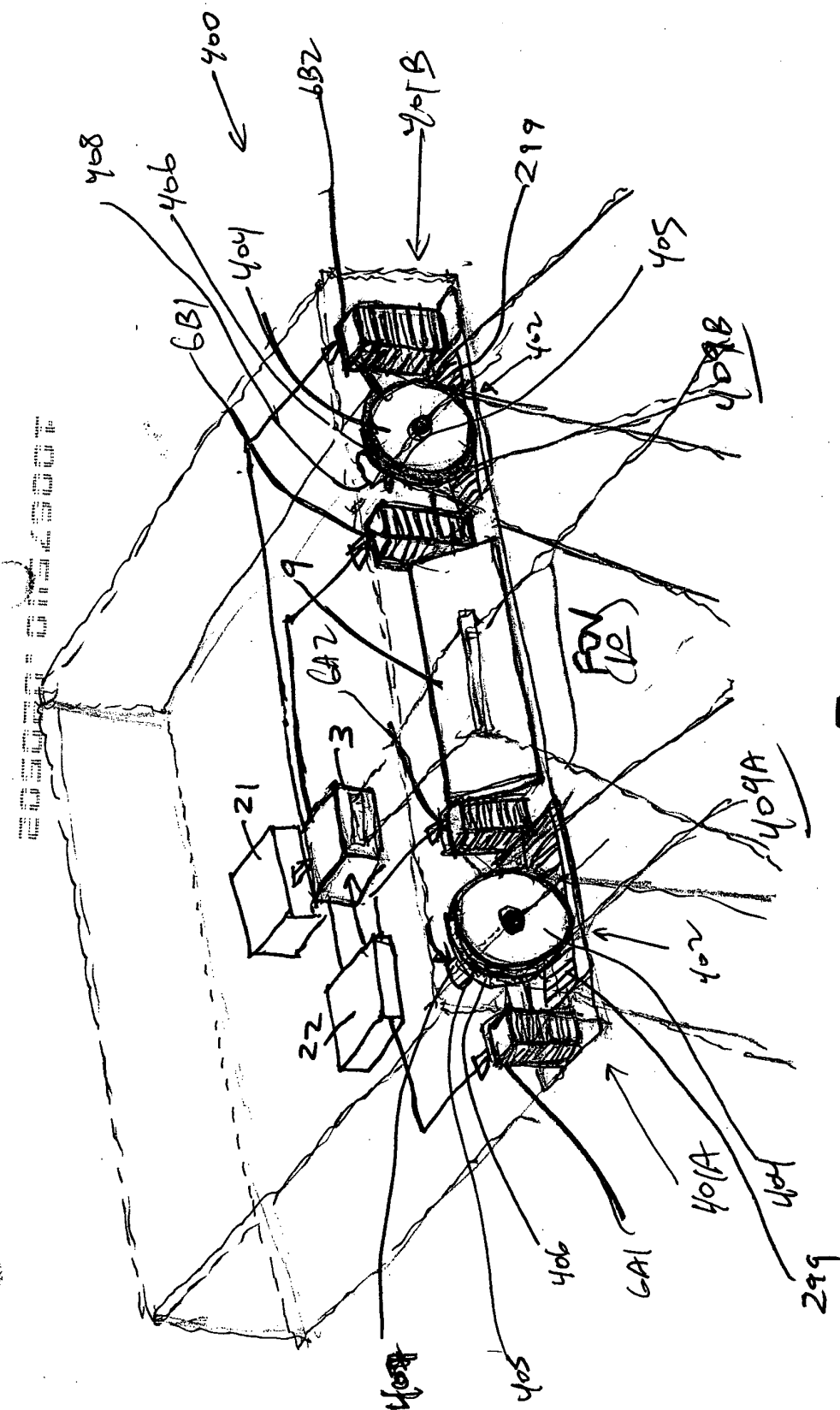


FIG. 11A

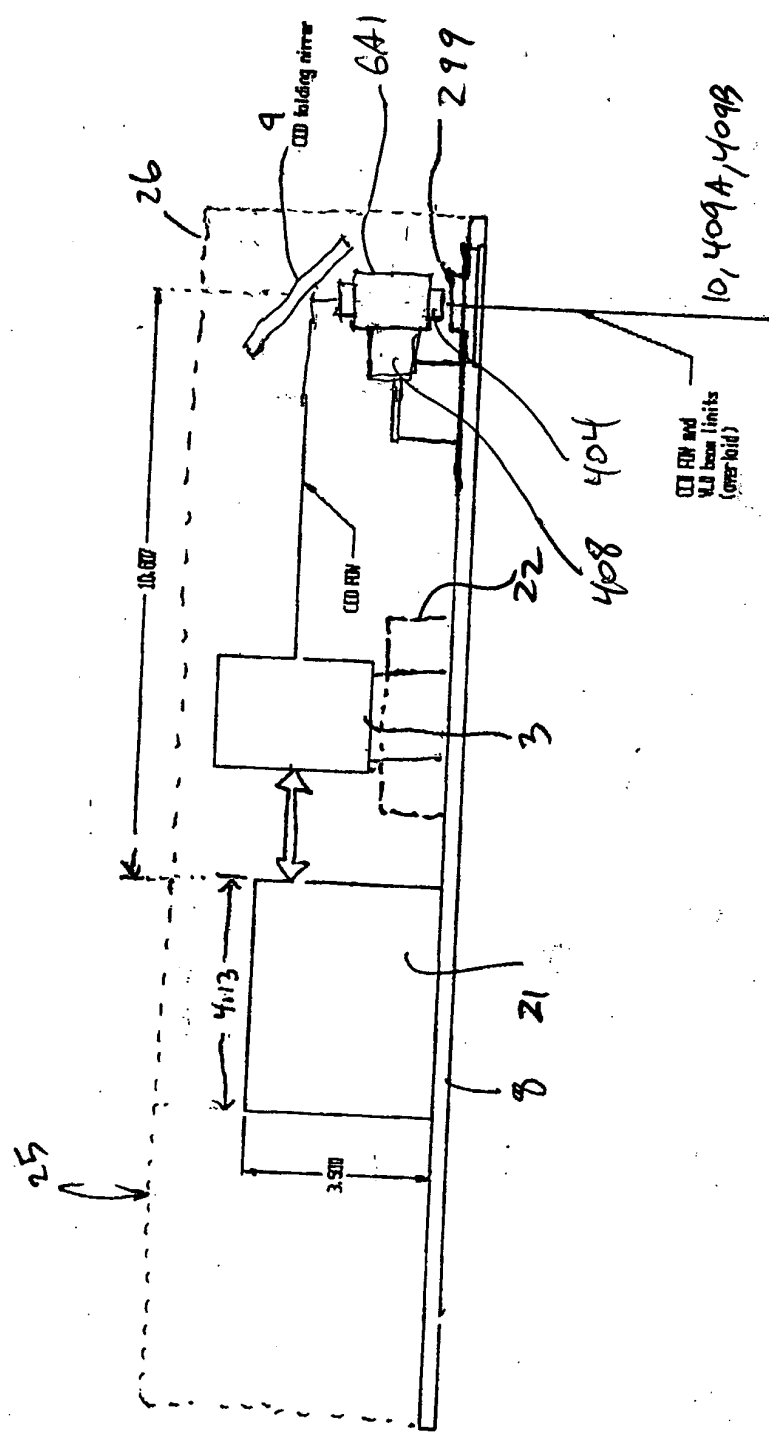


FIG 1I1B

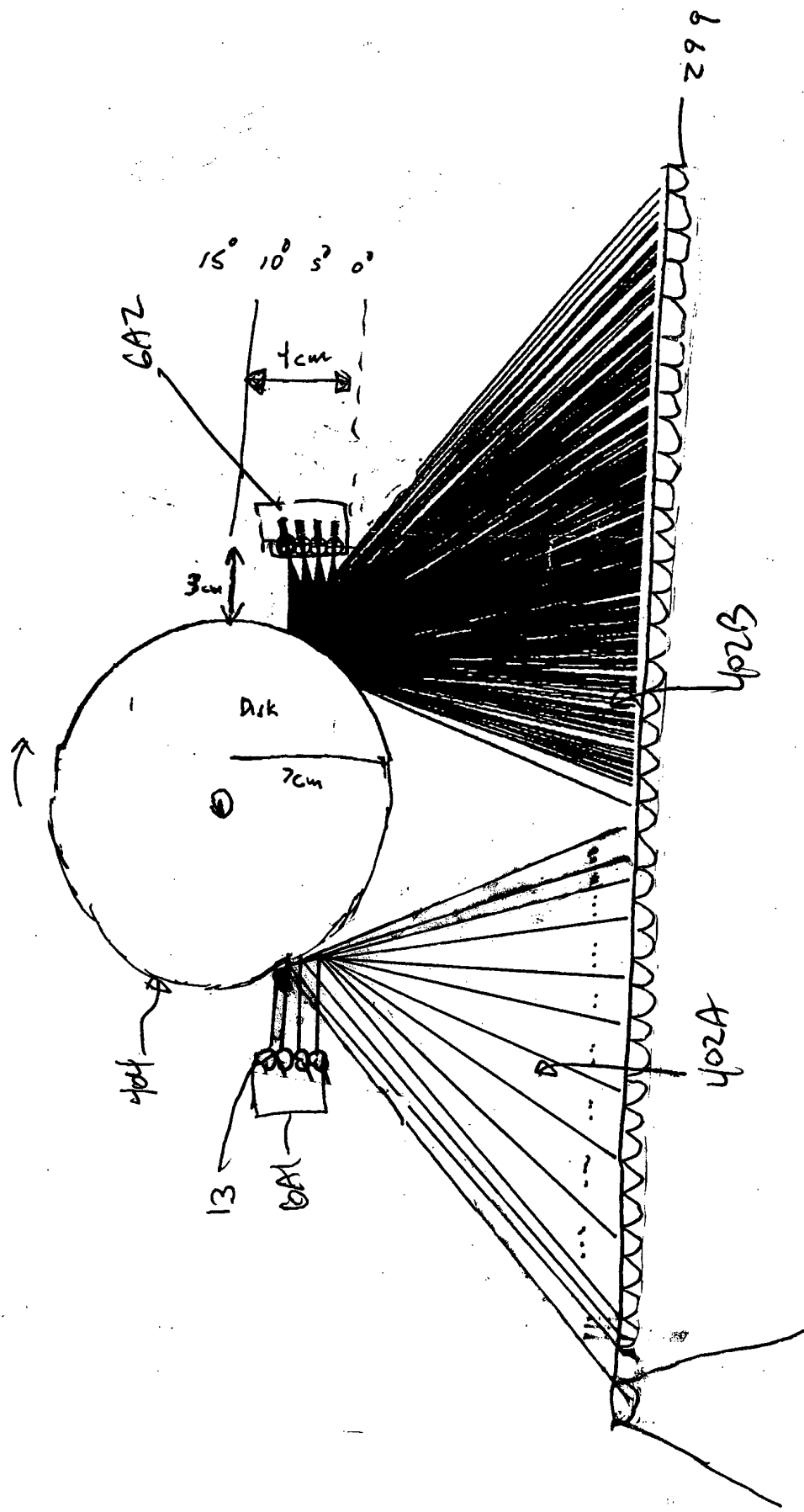


FIG. 1I11C

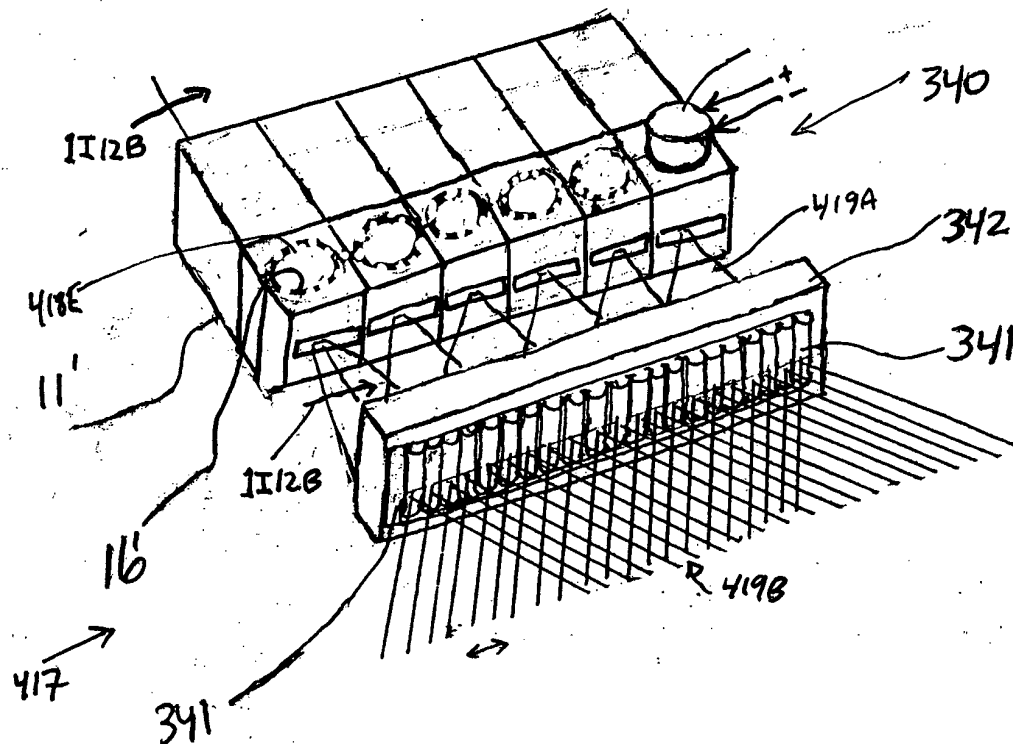


FIG. 1I12A

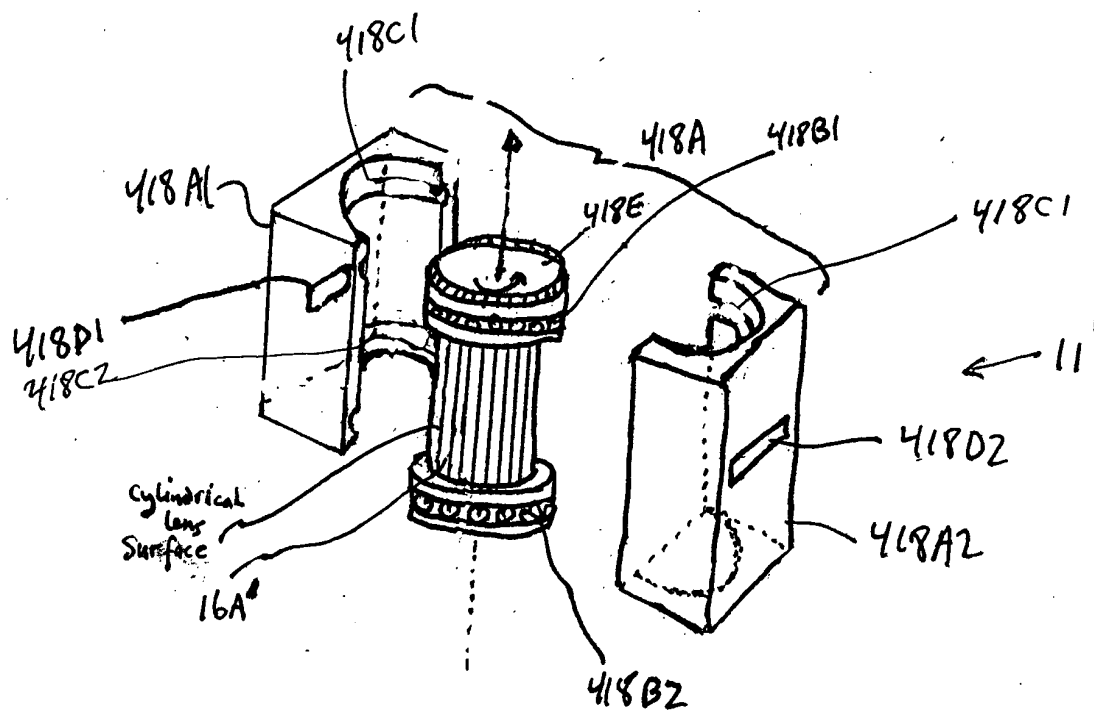


FIG. 1I12B

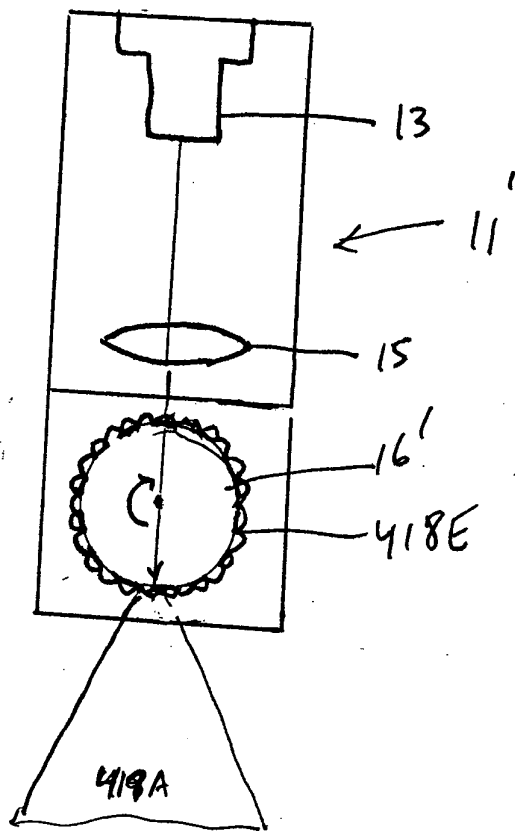


FIG. 1I12C

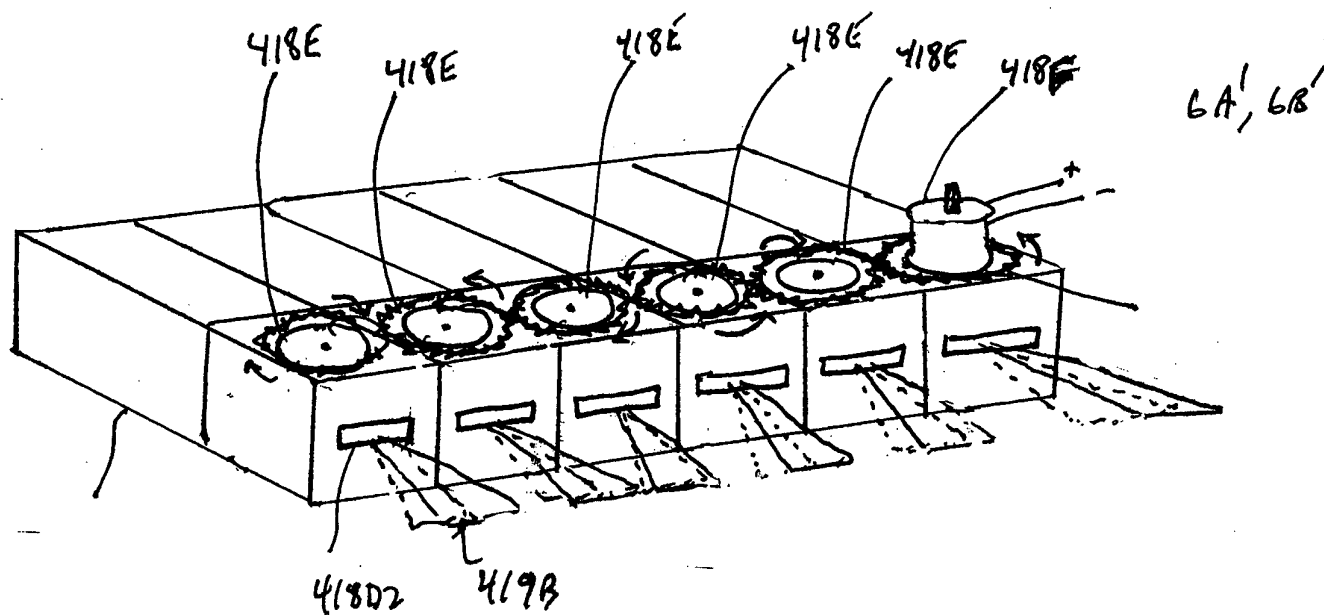


FIG. 1I12D

Second Generalized Method of Reducing Spackle-Noise Patterns at Image Detection Using of the FFD Subsystem (3)

FIG. 1 is a perspective view of a system for measuring the time of flight of light. A light source 5 emits a beam through a lens 2 towards a target 12. The beam is reflected by a mirror 3 and a prism 6A, 6B. A moving bar code structure 4 is positioned to receive the beam. The system is divided into two regions, 7A and 7B, by a vertical plane 8. The field of view is labeled FOV(10).

FIG. 11/13

43/332

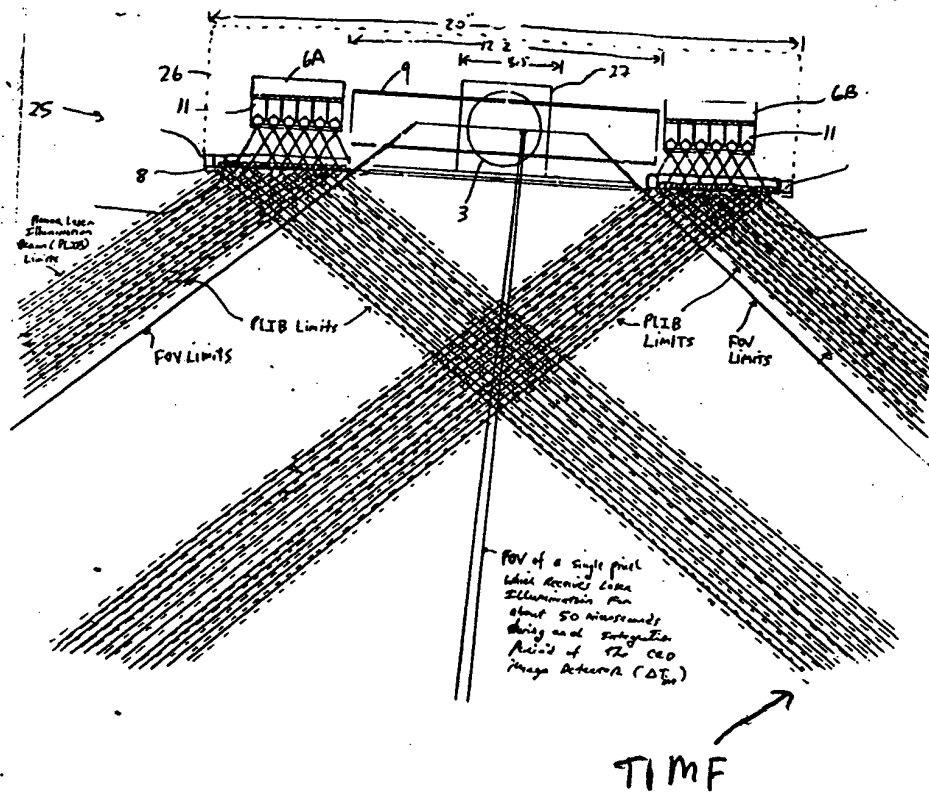


FIG. 1 I 13A

The Second Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal intensity of the transmitted PLIB along the planar extent thereof according to a temporal intensity modulation function (TIMF) so as to

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG 1I13B

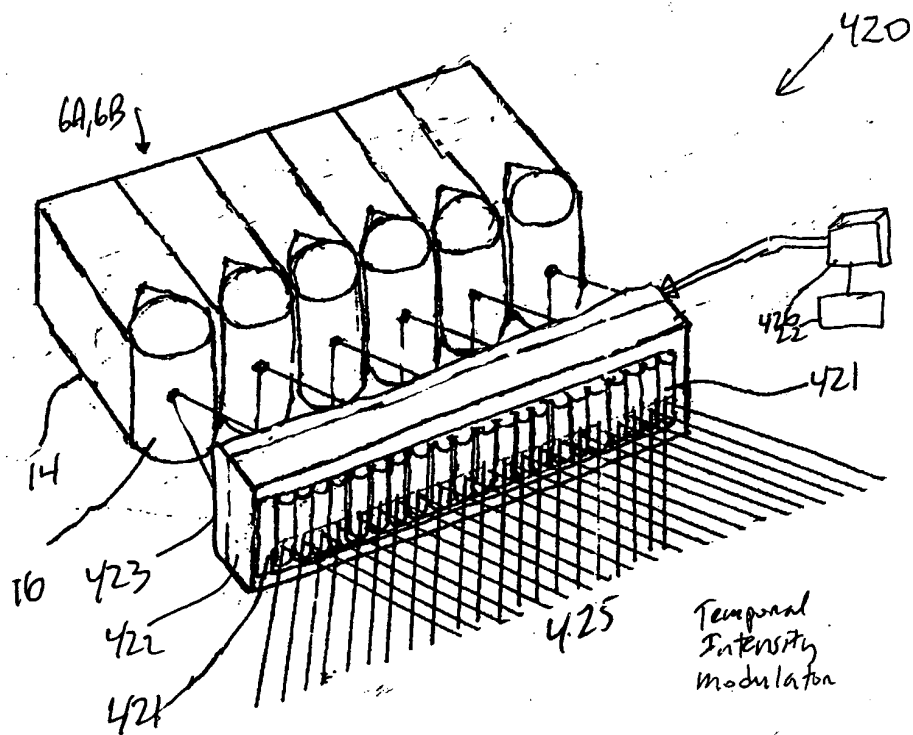


FIG. 1I14A

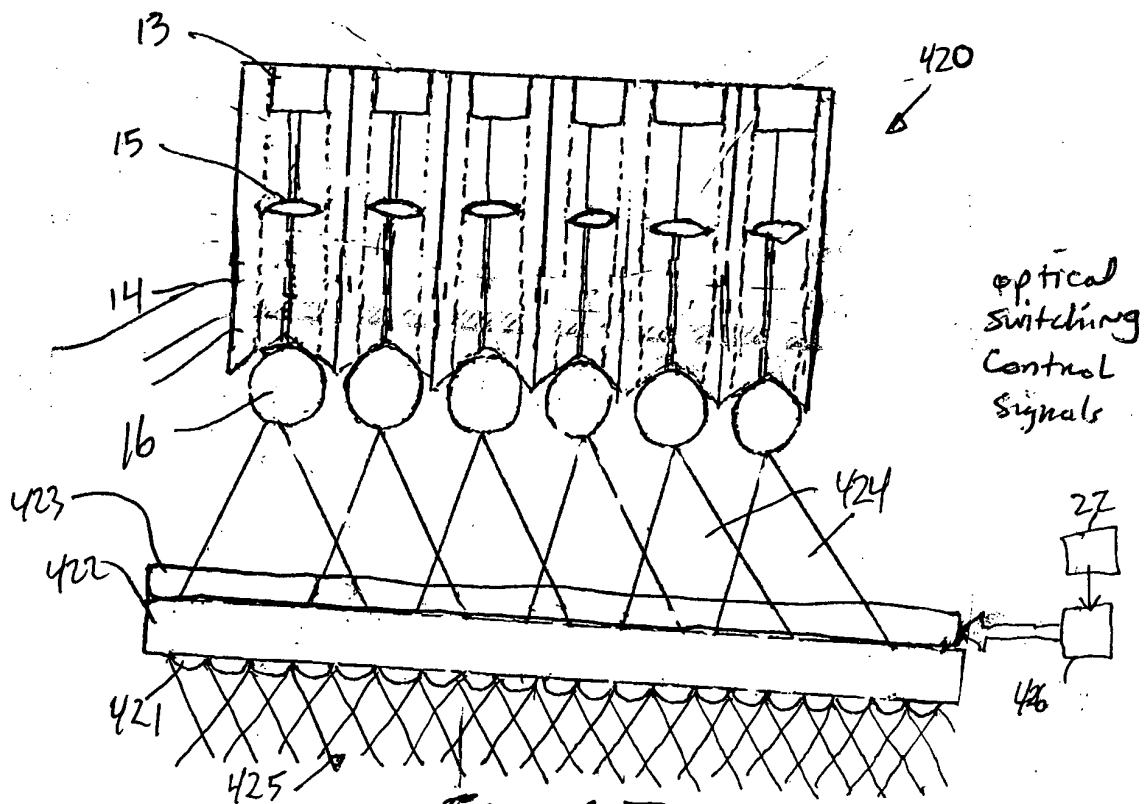
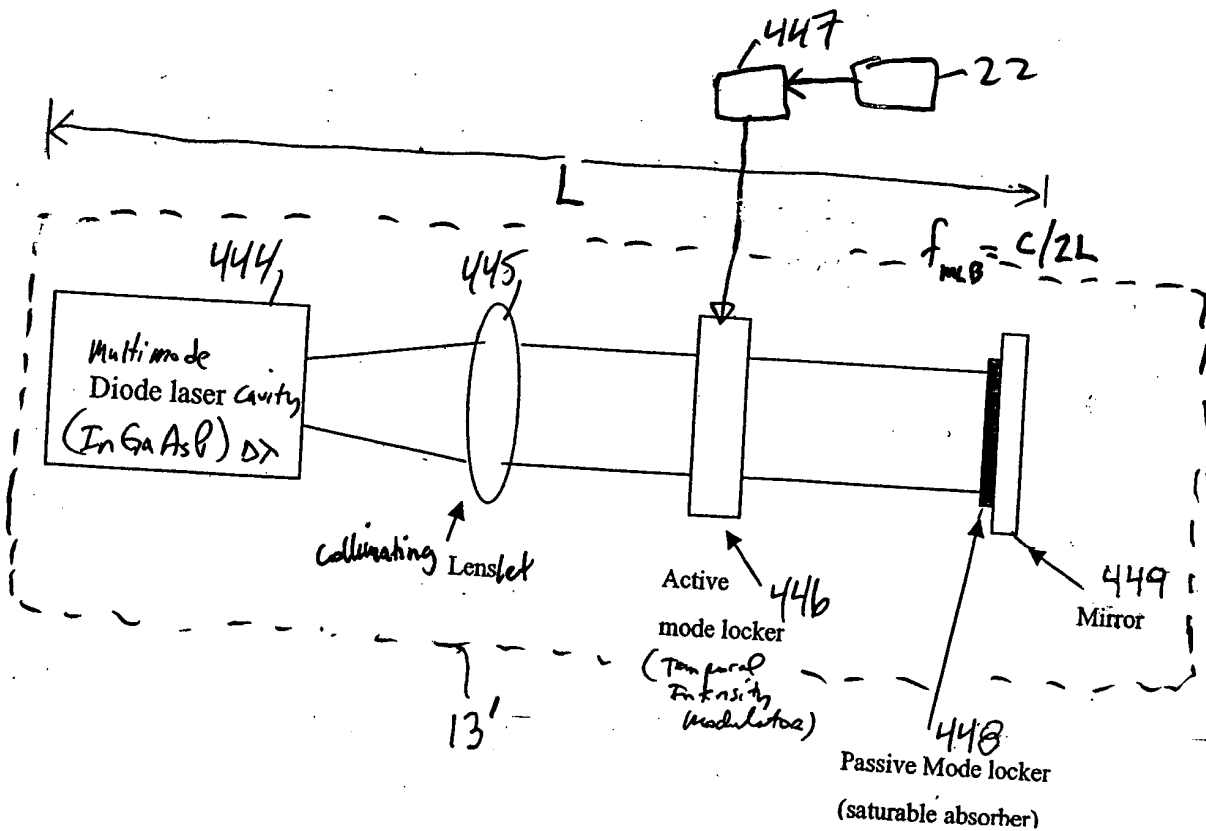
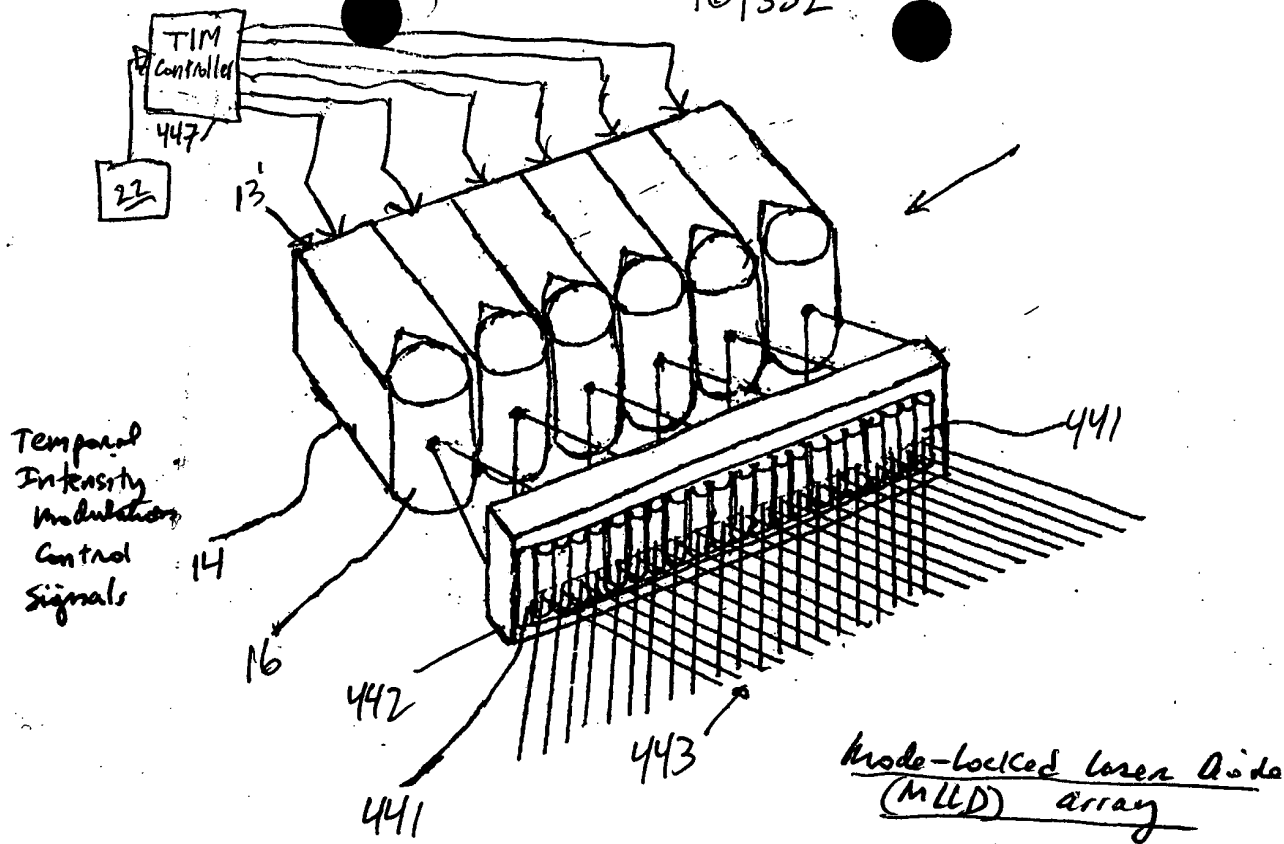


FIG. 1I14B

46/332



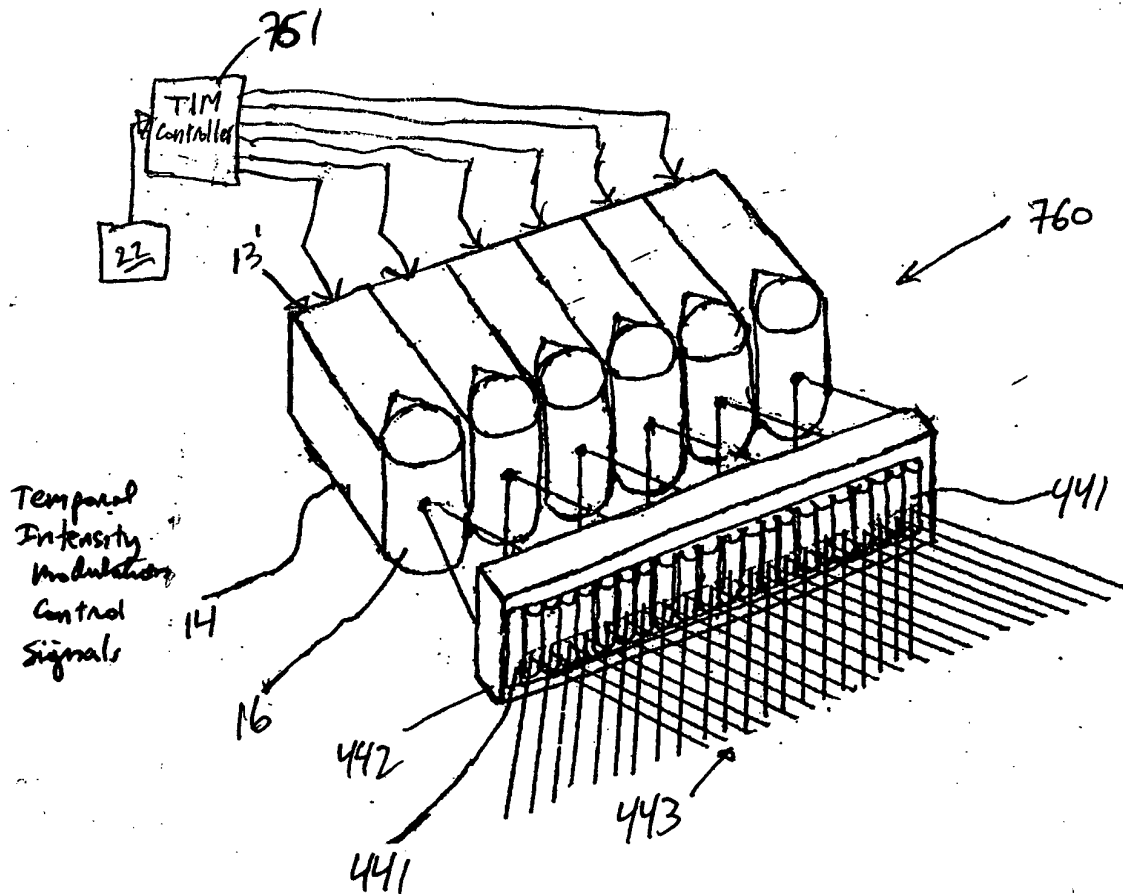


FIG. 1I15C

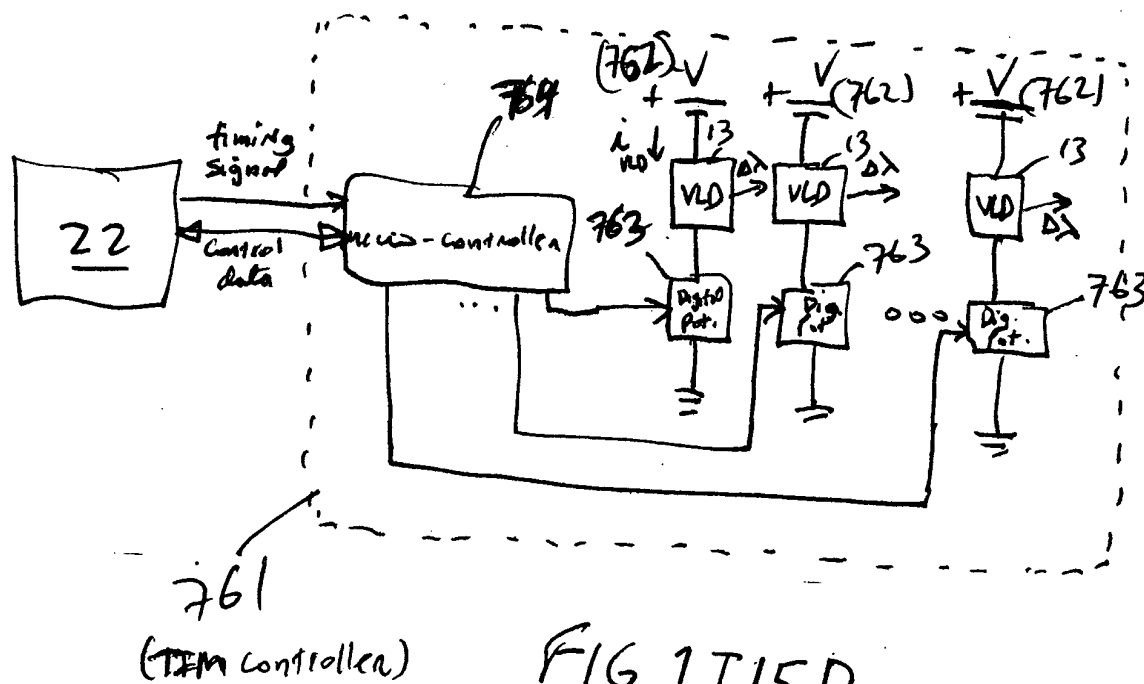


FIG. 1I15D

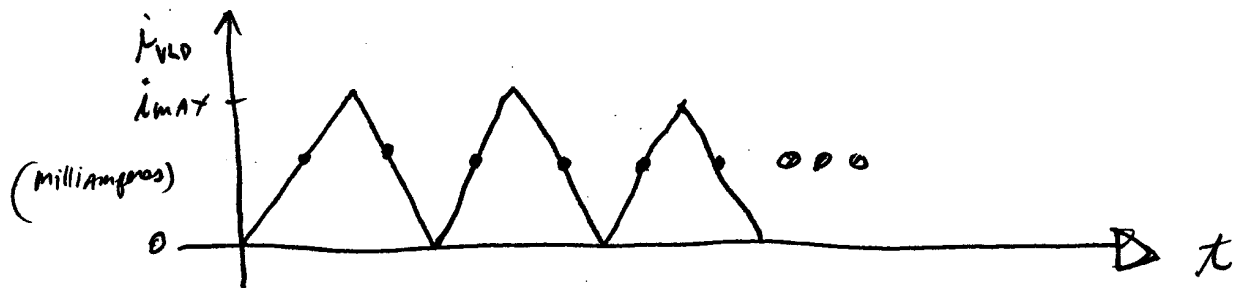


FIG. 1I15E

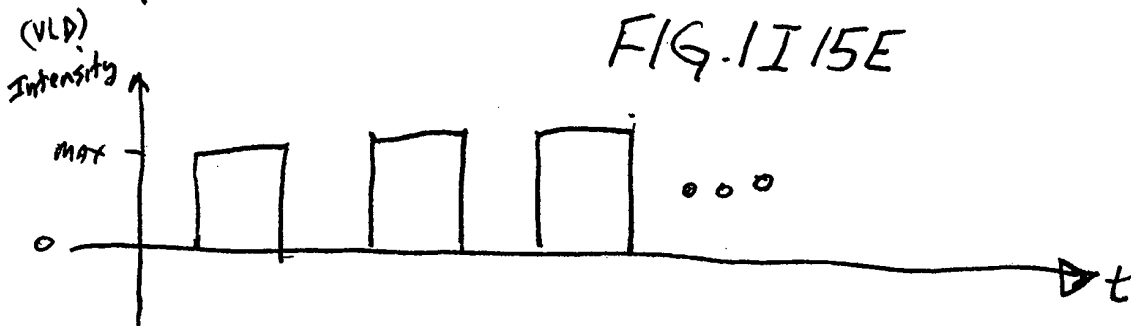


FIG. 1I15E

48/332

49/ 332

Third Generalized Method of
Reducing Speckle-Noise Patterns
at Image Detection Array
of the FFD Subsystem (3)

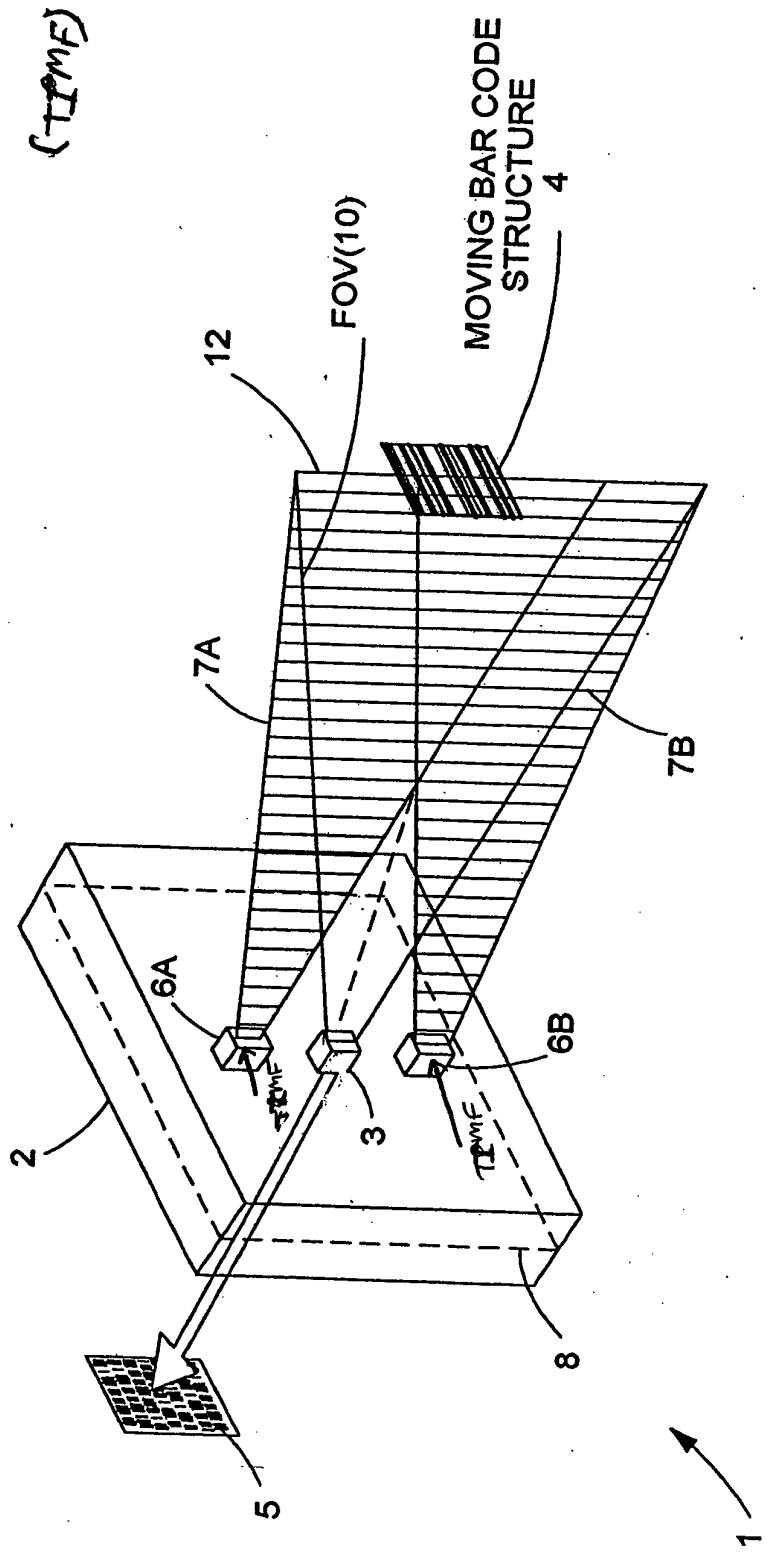
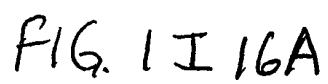


FIG. 11 16



Third Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal *phase* of the transmitted PLIB ~~along the planar extent thereof~~ according to a *temporal phase* modulation function (TPMF) so as to:

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

↓

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG 1I/6B

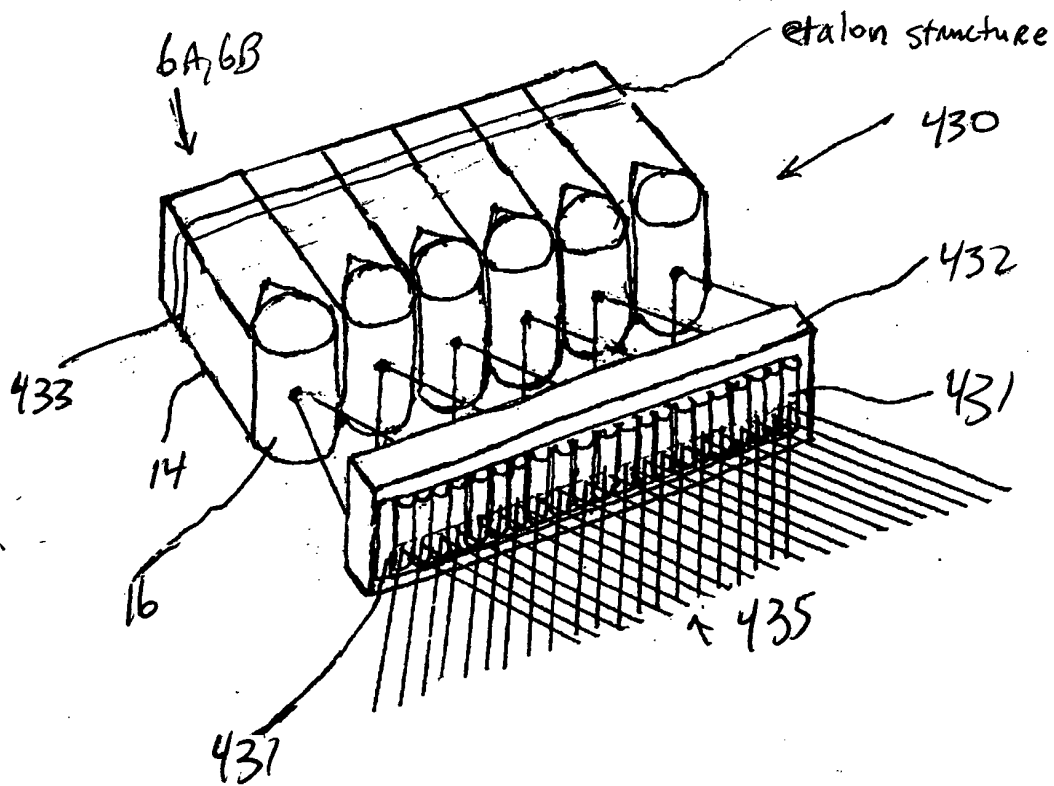


FIG. 1I17A

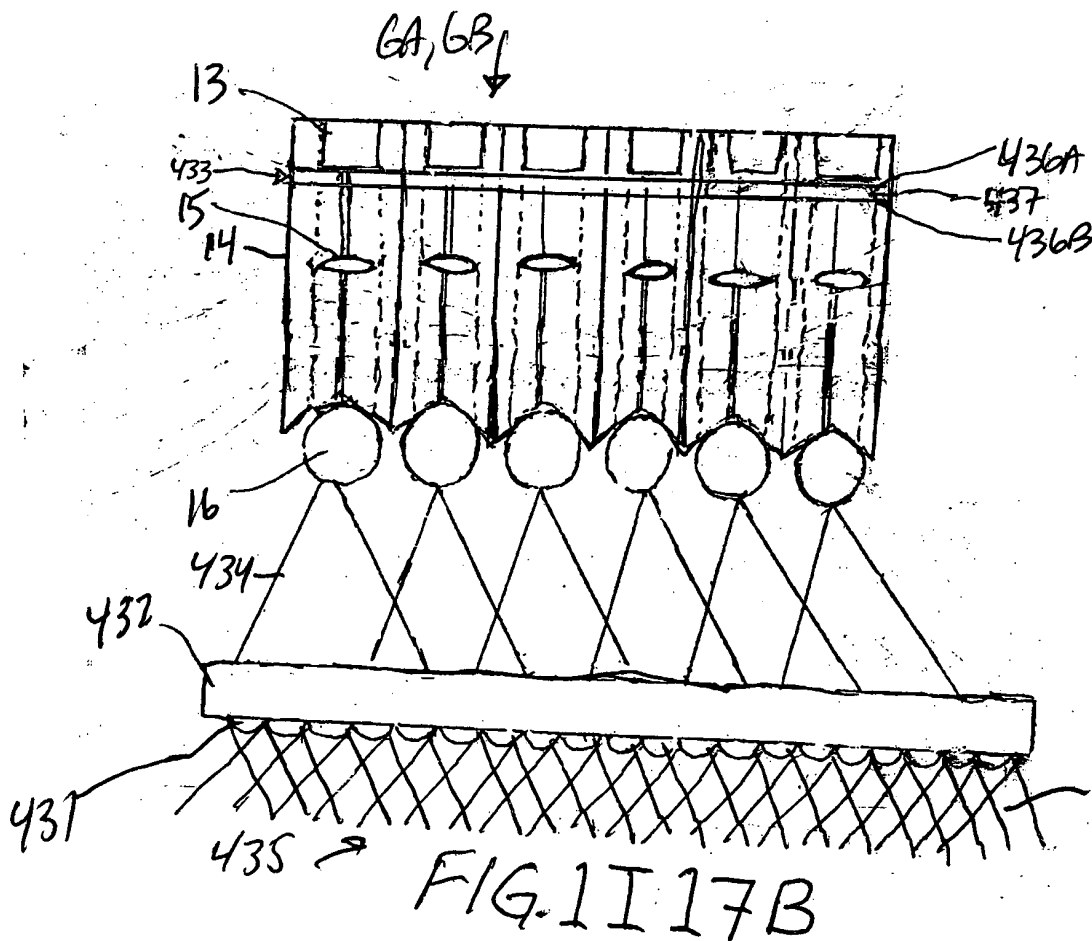


FIG. 1I17B

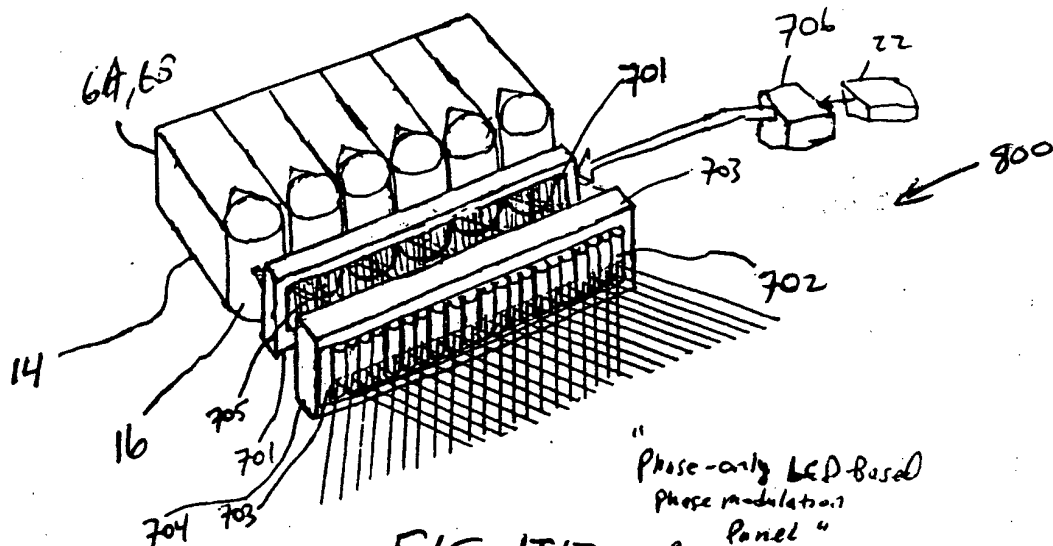


FIG. II17C ($\Delta\phi >$ coherence length)
of VLD

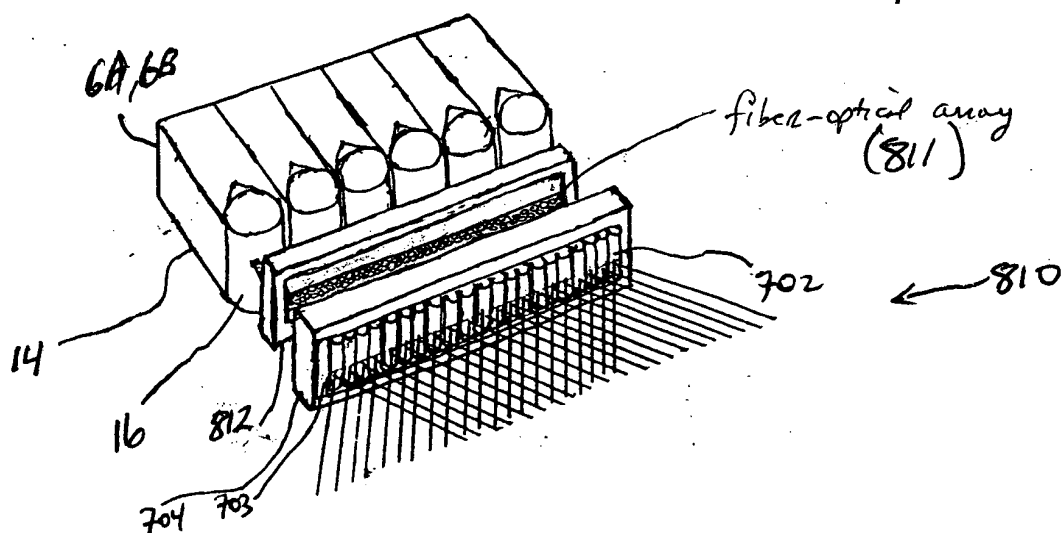


FIG. II17D

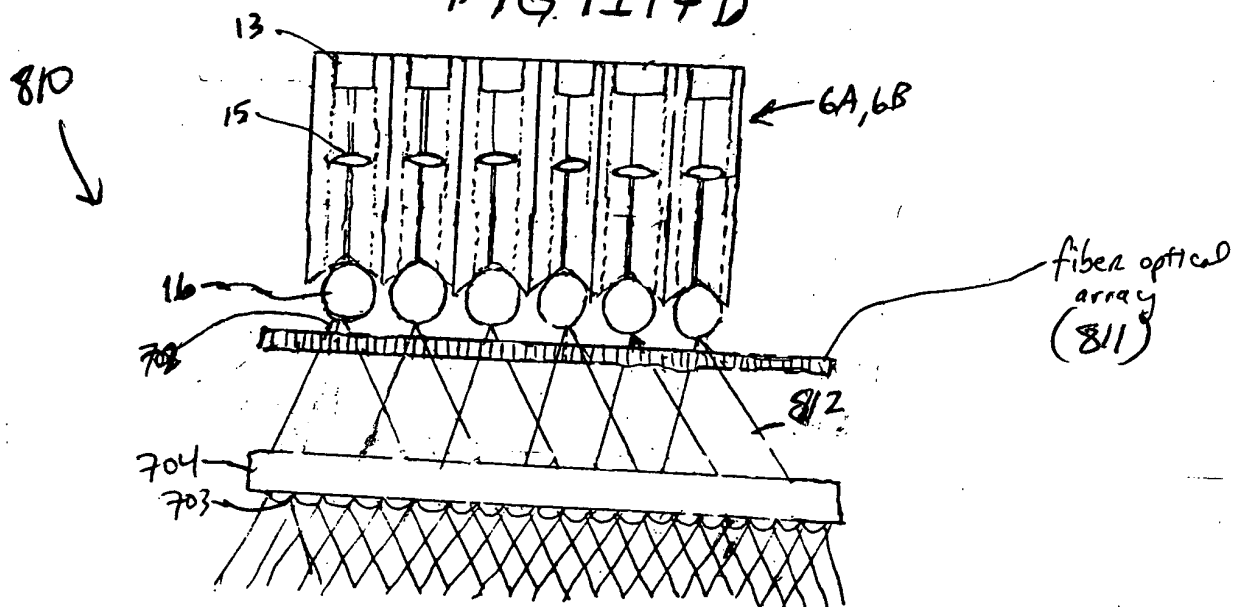


FIG. II17E

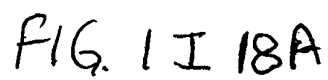


FIG. 1I 18A

Fourth Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal frequency of the transmitted PLIB according to a temporal intensity modulation function (T IMF) so as to ;

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

FIG. 1I18B

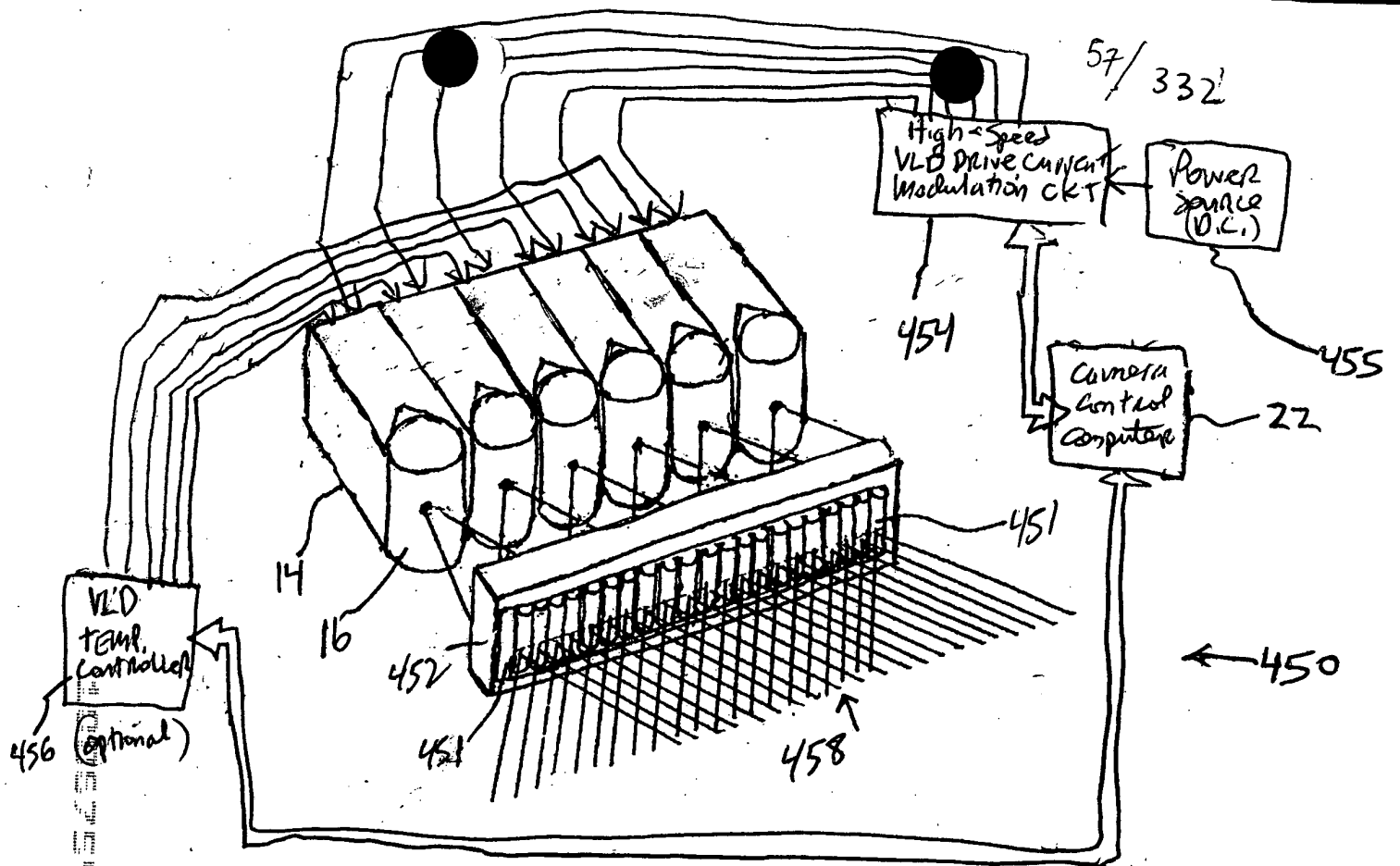
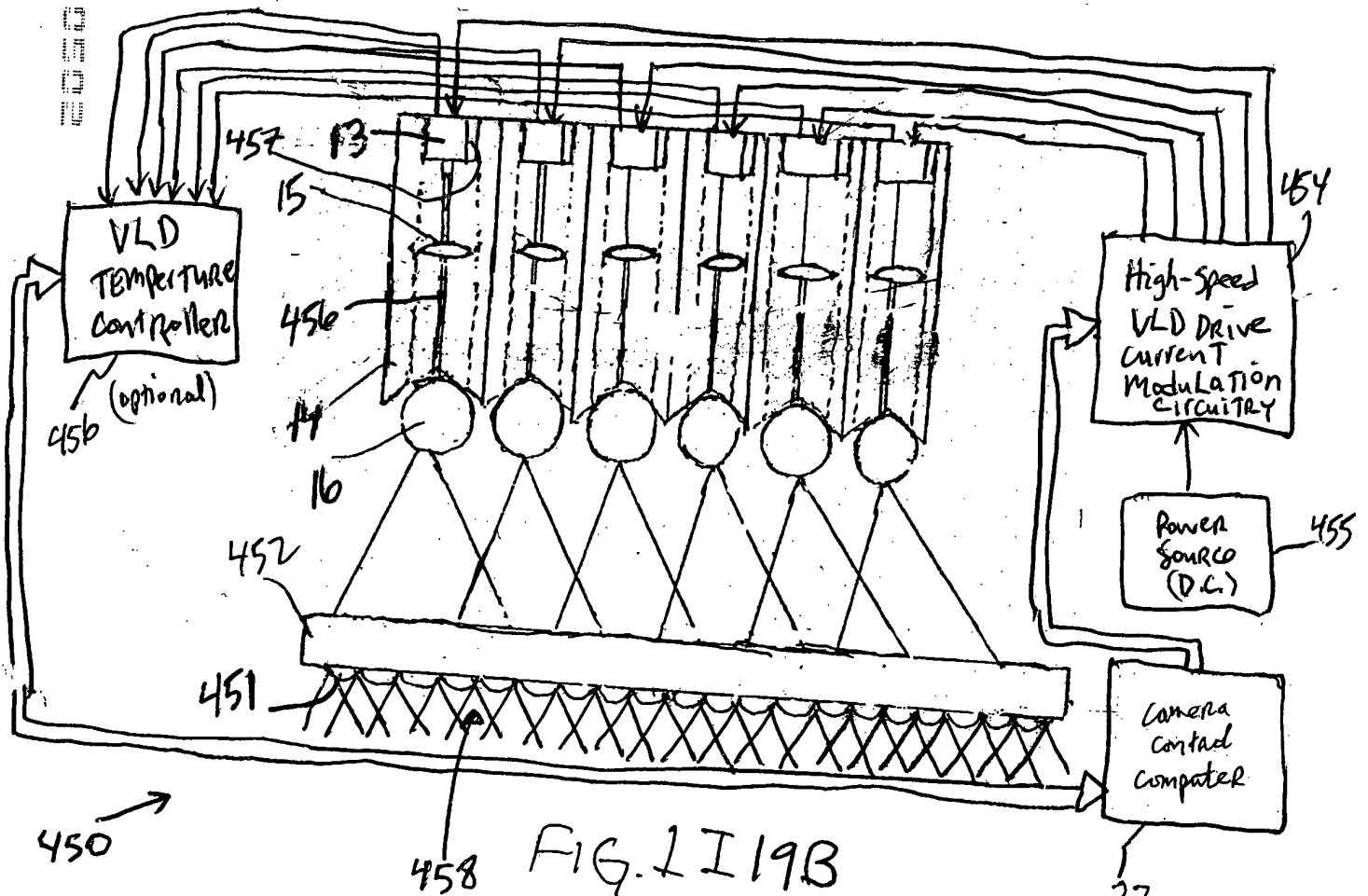


FIG. 1I 19A



58/ 332

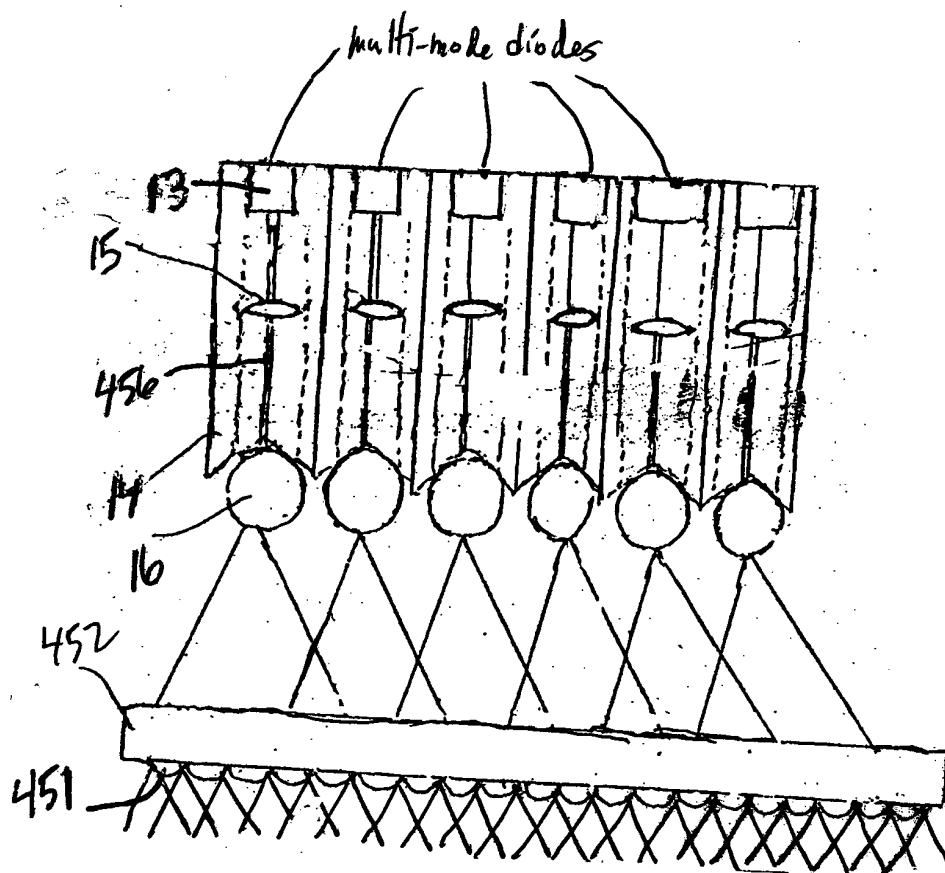


FIG 1I19C

Fifth Generalized Method
of Reducing Speckle-Noise
Patterns AT Image
Detection array OF the
FFD subsystem (3)

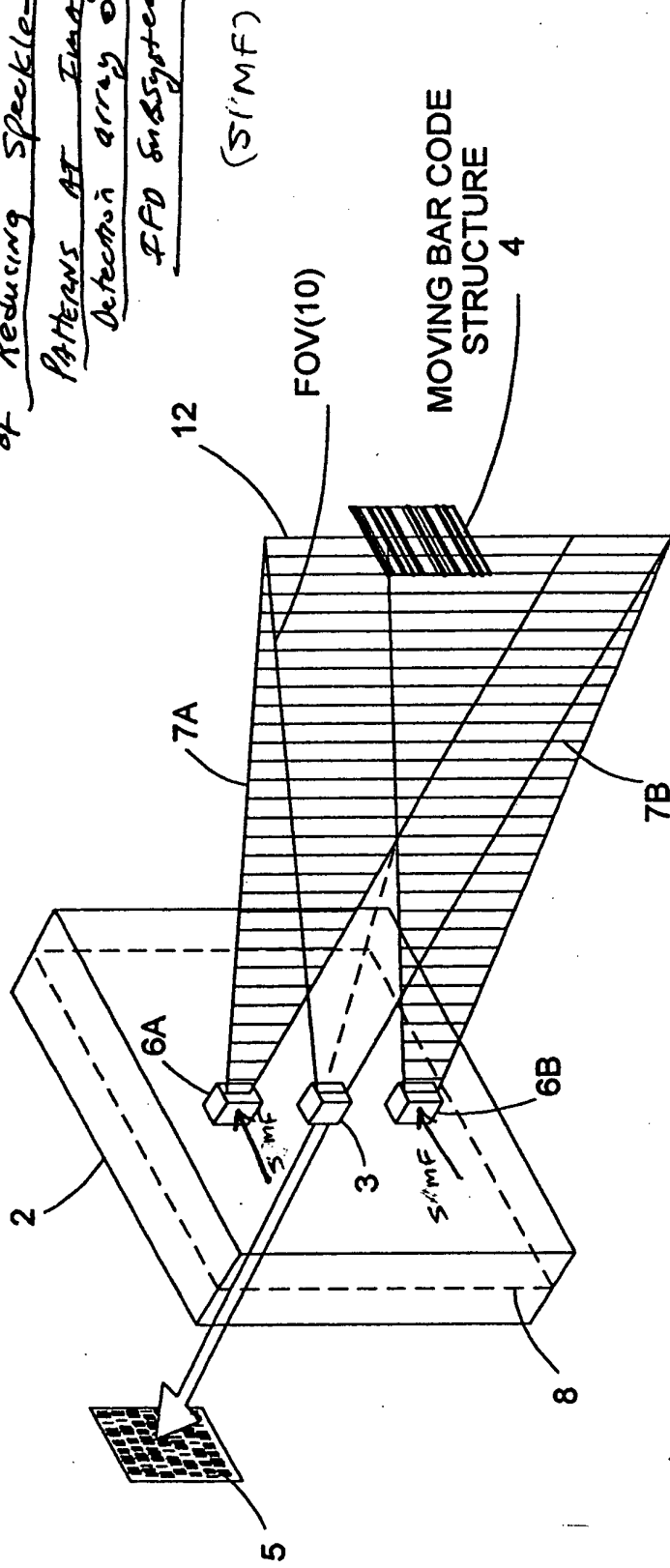


FIG 1F 20

61/ 332

Fifth Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

Prior to illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial intensity of the transmitted PLIB along the planar extent thereof according to a spatial intensity modulation function (SIMF) so as to :

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

A

↓

Temporally average the numerous substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce power of the speckle-noise pattern observed at the image detection array.

B

FIG. 1I20B

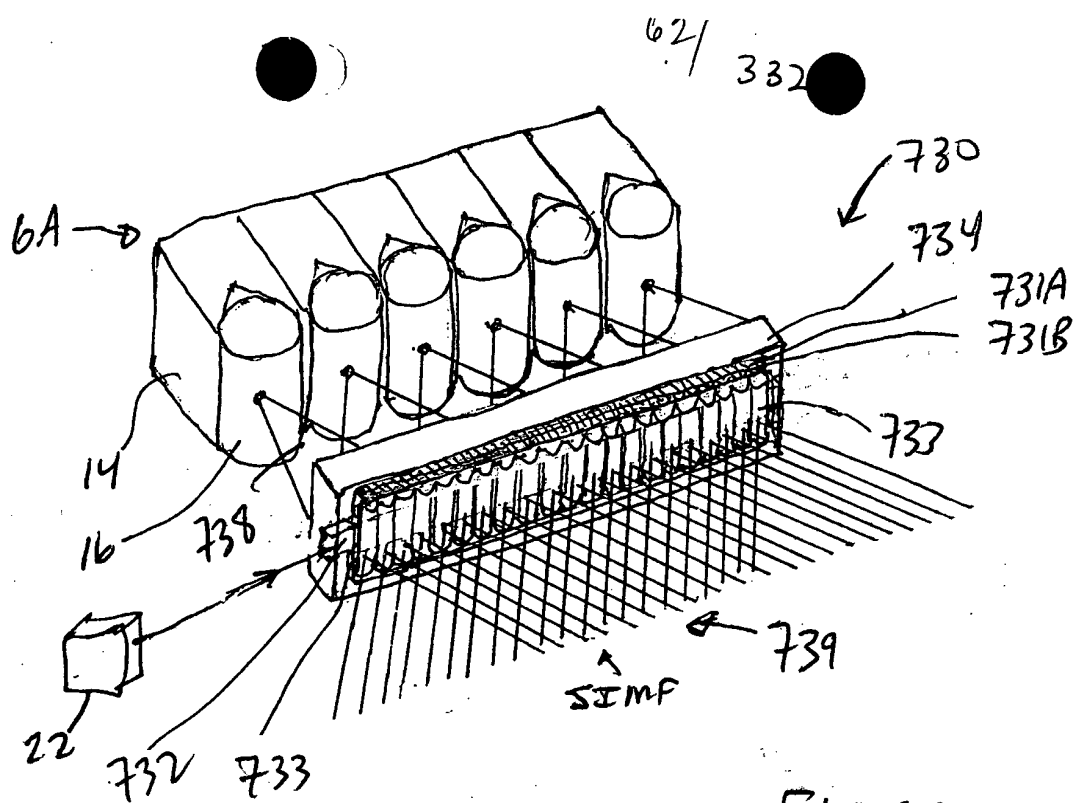


FIG. 1I2IA

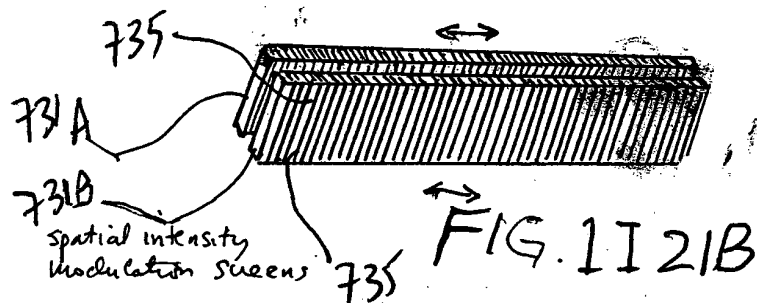


FIG. 1I2IB

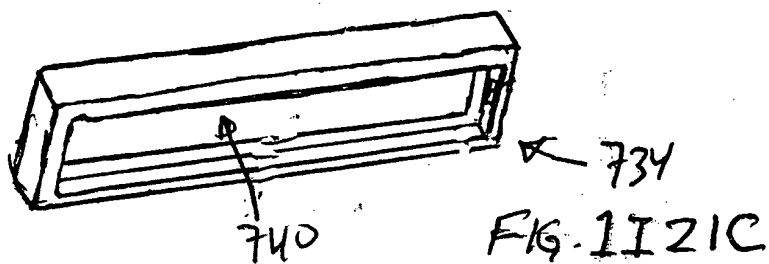


FIG. 1I2IC

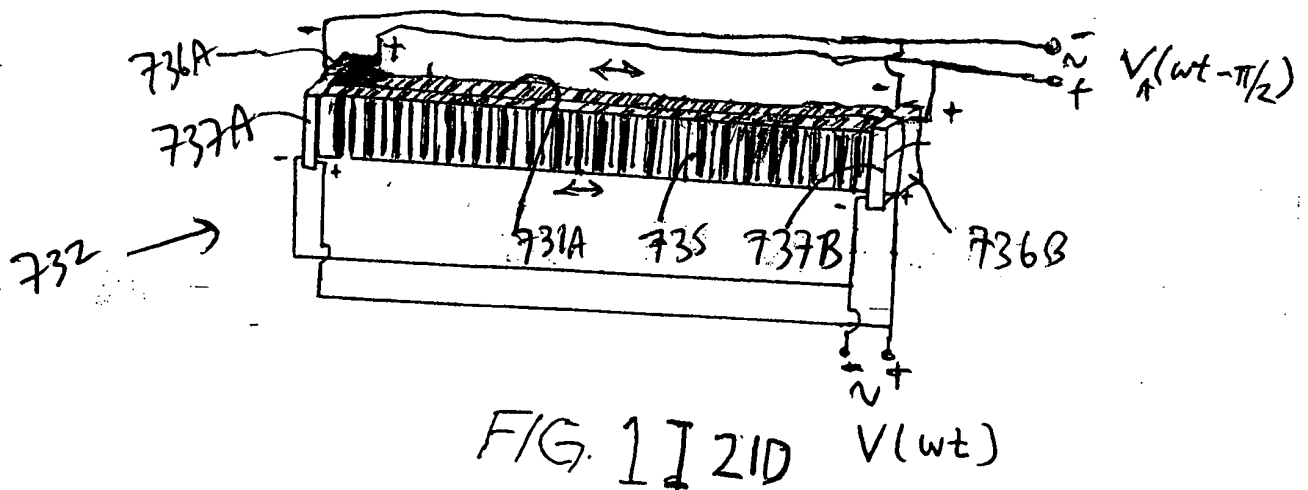


FIG. 1I2ID

Generalized Method of
Reducing Speckle-Noise Patterns
at Image Detection array
of the IFD Subsystem

(SIMF)

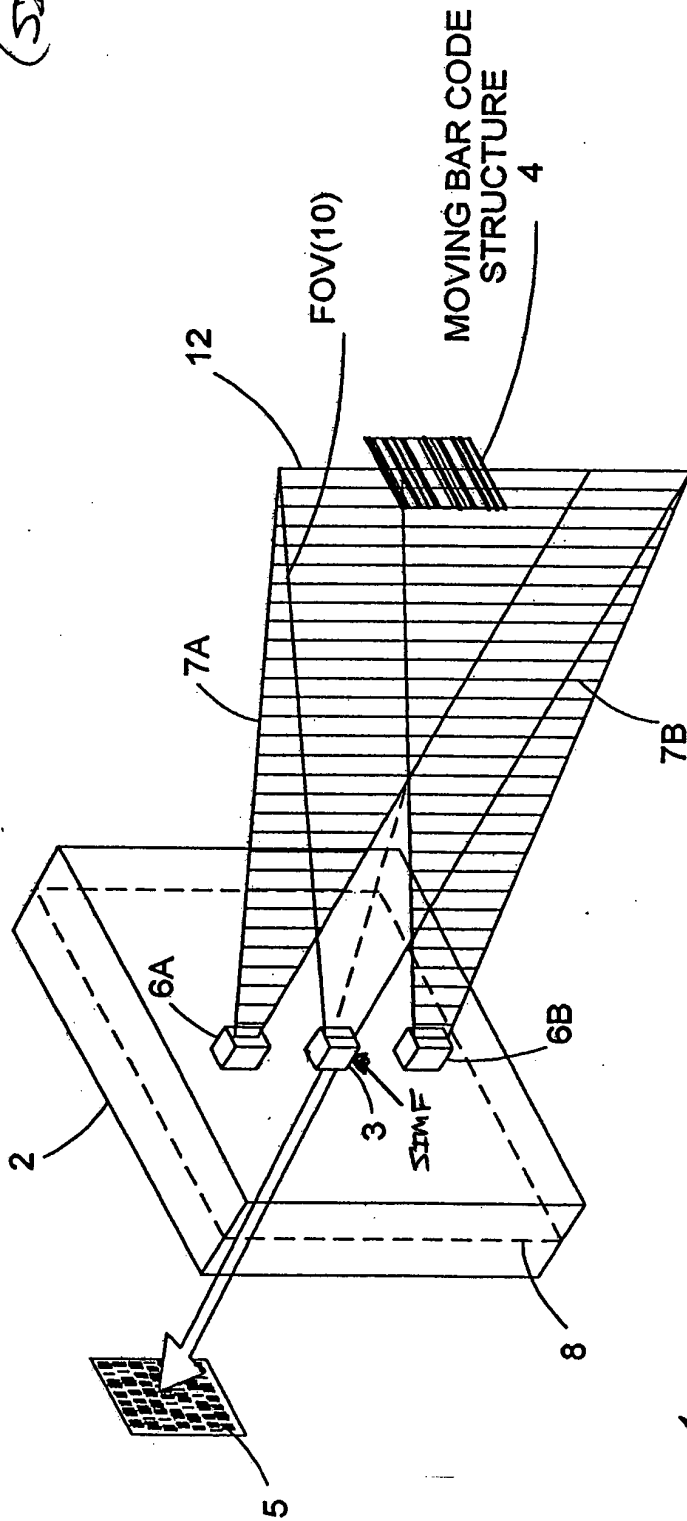


FIG. 1I 22

1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2



FIG. II 22A

Sixth Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

After illumination of the target with the planar laser illumination beam (PLIB), modulate the spatial intensity of the reflected/scattered (i.e. received) PLIB along the planar extent thereof according to a spatial intensity modulation function (SIMF) so as to :

produce numerous substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the many substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the speckle-noise pattern observed at the image detection array.

FIG. 1I 22B

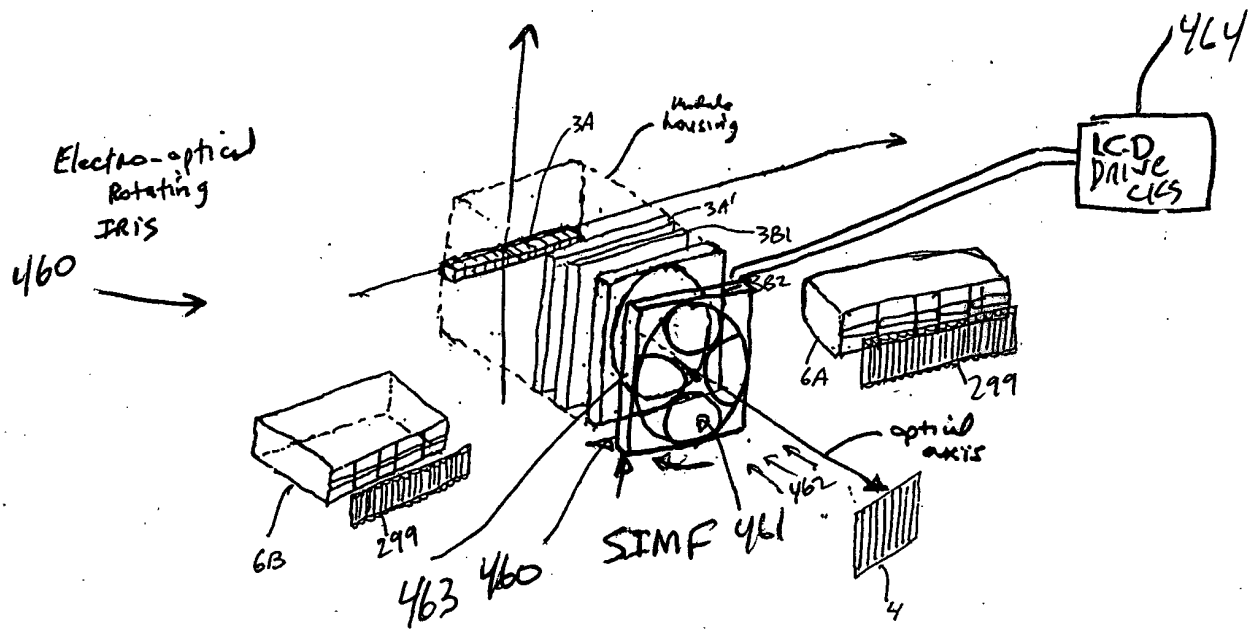


FIG. 1I 23A

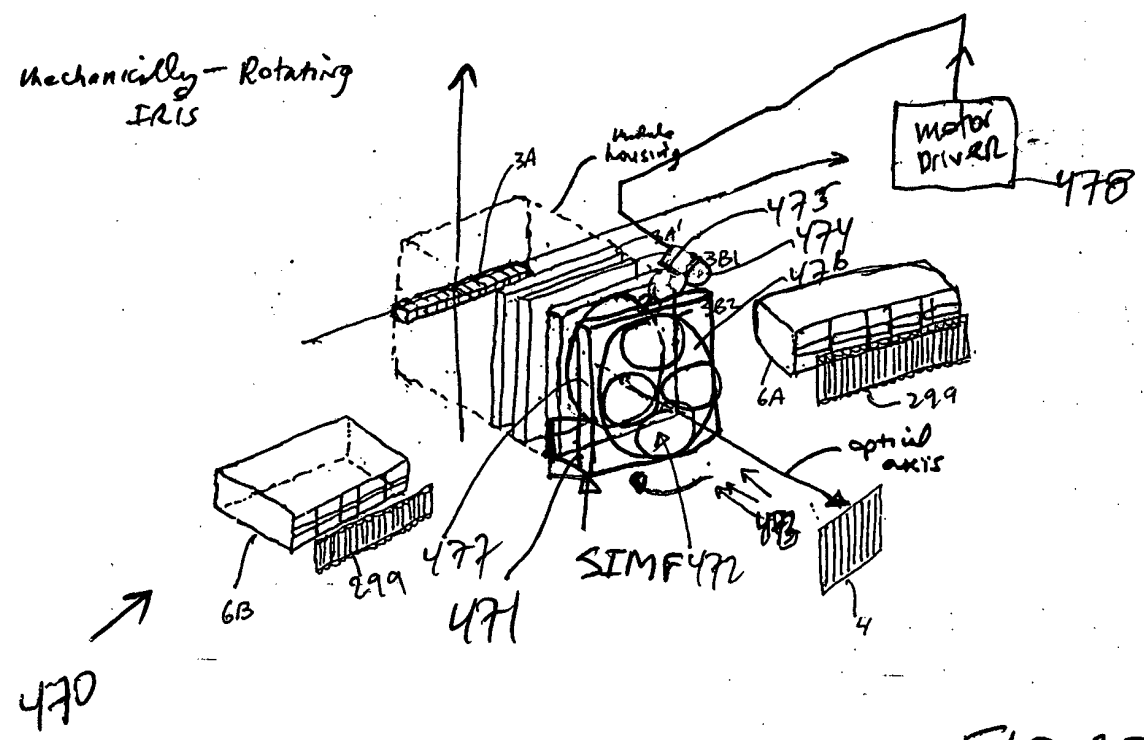


FIG. 1I 23B

67/332

Seventh Generalized Method of
Reducing Speckle - Noise Patterns
at Image Detection Array
of IR IFD Subsystem

(TIMF)

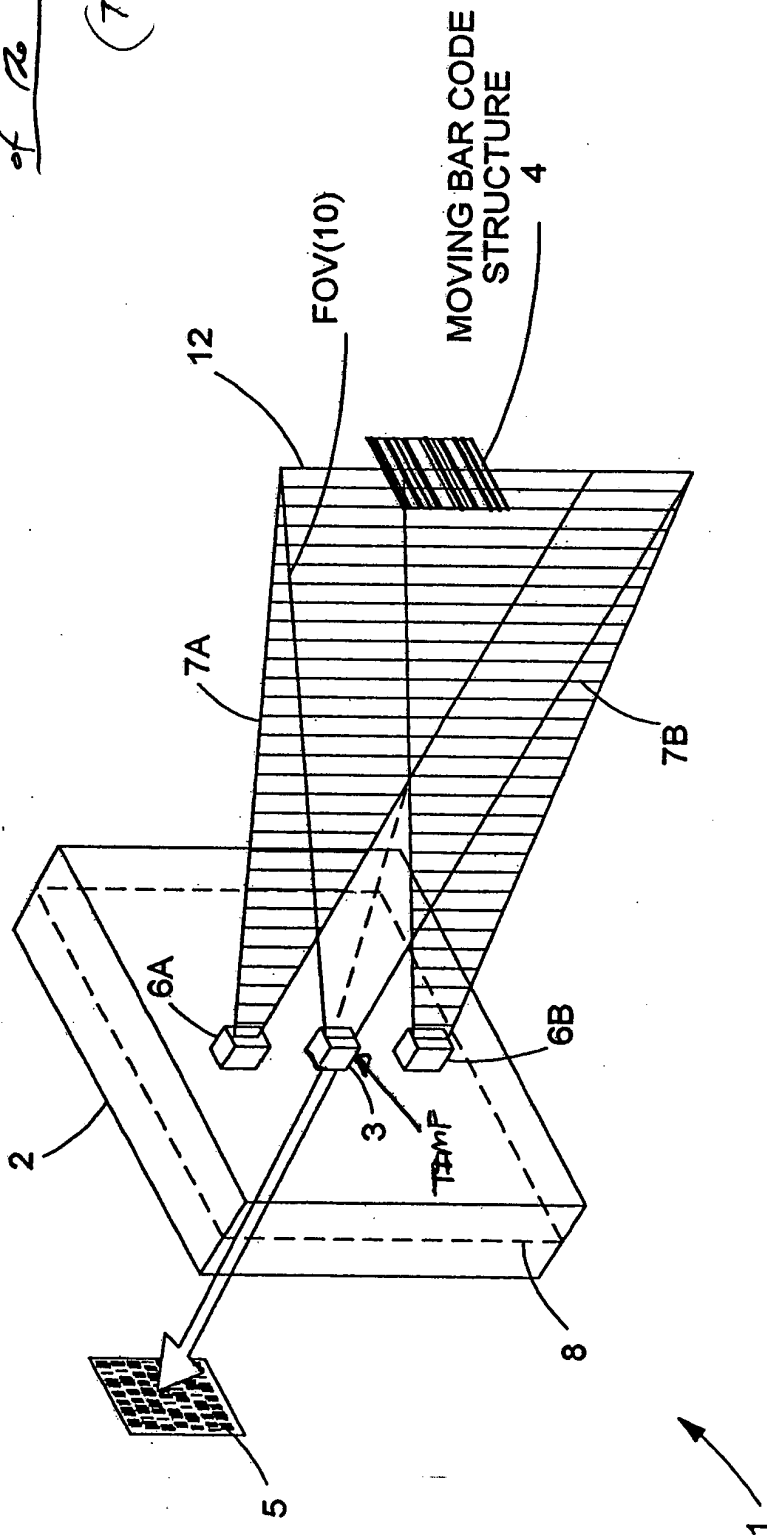


FIG. 1124

68/ 332

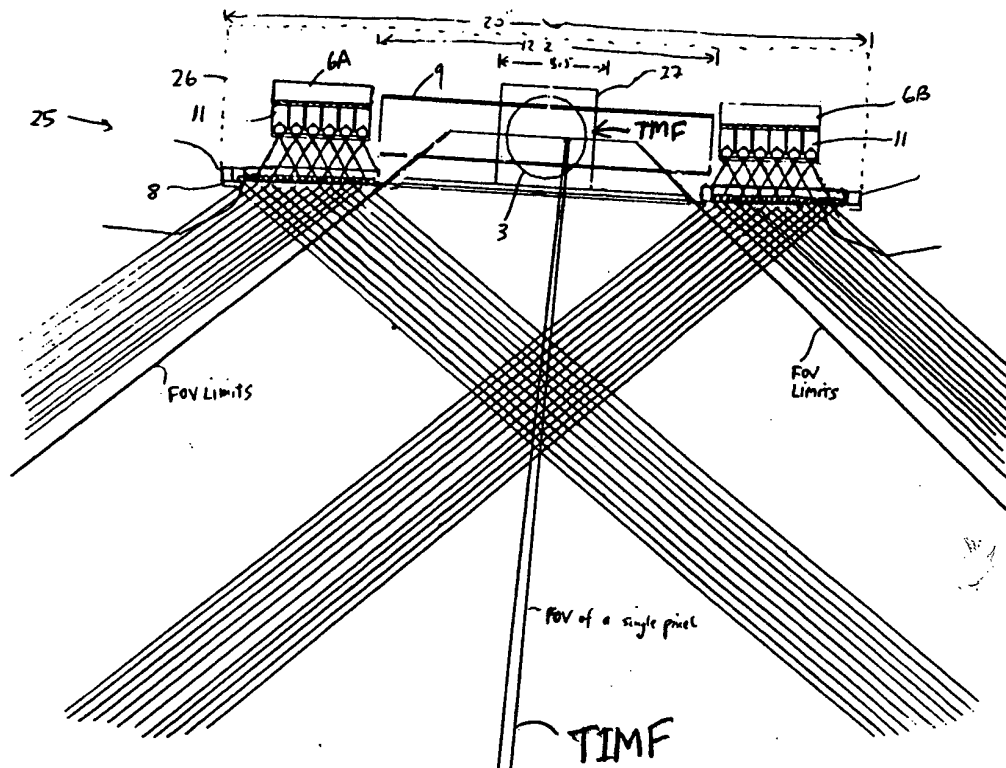


FIG. 1I24A

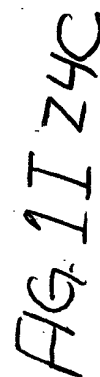
Seventh Generalized Speckle-Noise Pattern Reduction Method
Of The Present Invention

After illumination of the target with the planar laser illumination beam (PLIB), modulate the temporal intensity of the reflected/scattered (i.e. received) PLIB along the planar extent thereof according to a temporal intensity modulation function (TIMF) so as to

produce many substantially different time-varying speckle-noise patterns at the image detection array of the IFD Subsystem during the photo-integration time period thereof.

Temporally average the many substantially different time-varying speckle-noise patterns produced at the image detection array in the IFD Subsystem during the photo-integration time period thereof, so as to thereby reduce the speckle-noise pattern observed at the image detection array.

FIG. 1I 24B



- * Lateral and Transverse
 Maxioscillation of PLIB

72/ 332

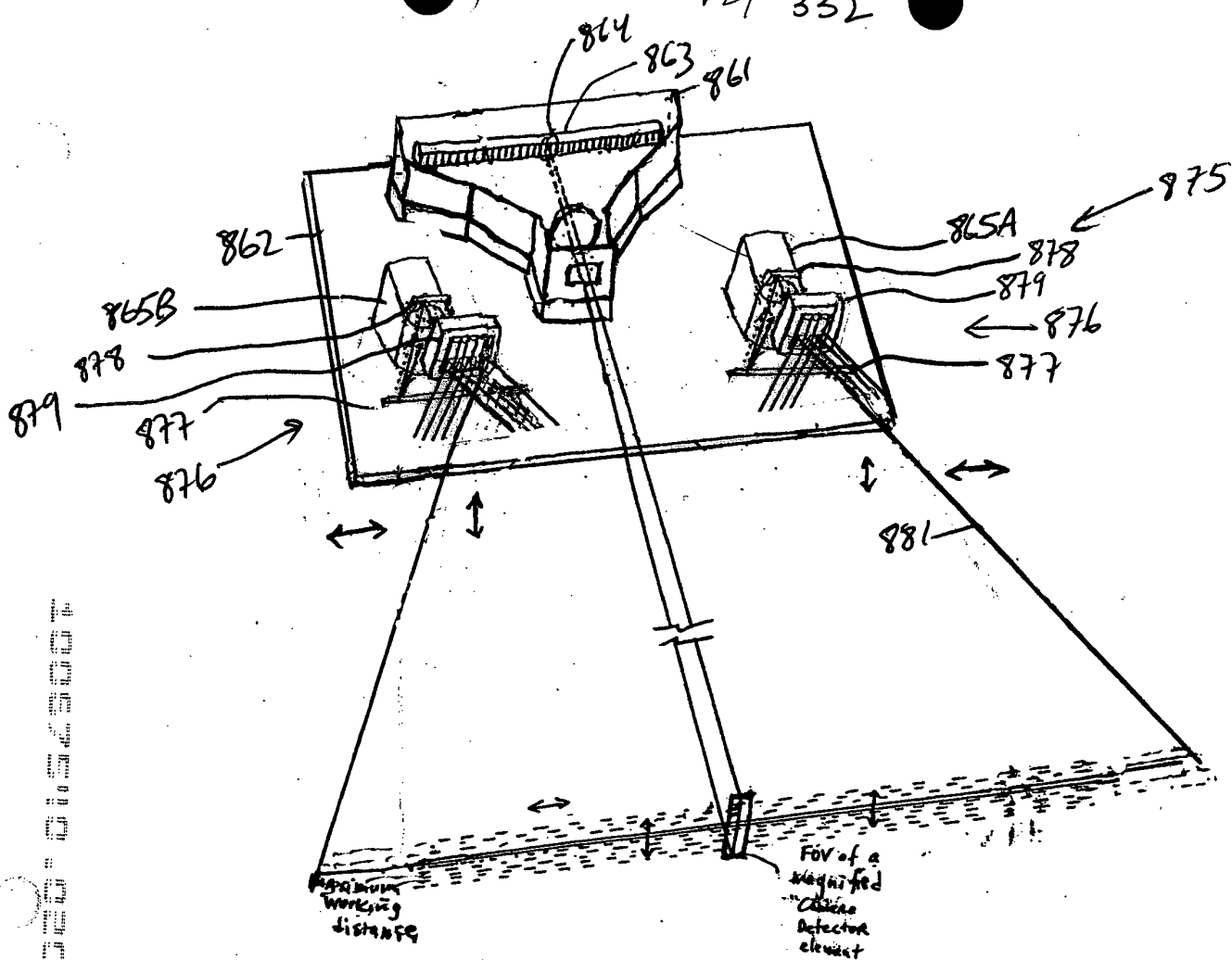


FIG. 1I25B1

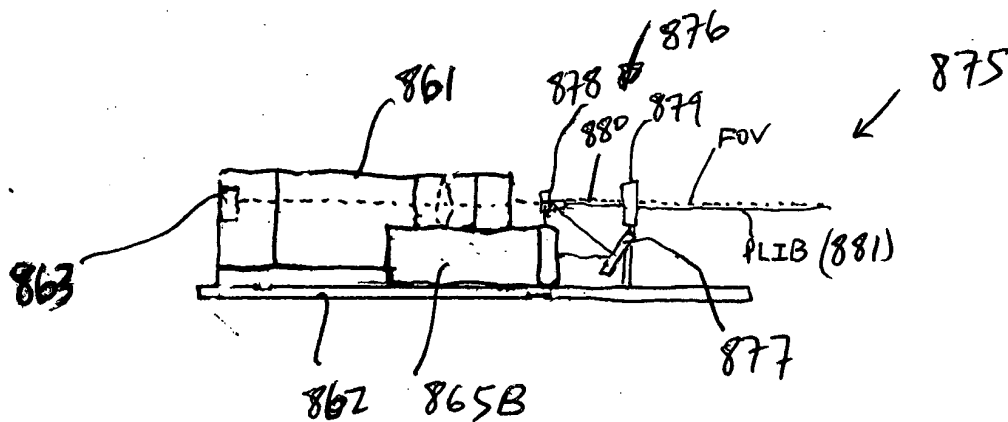


FIG. 1I25B2

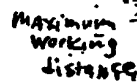


FIG. 1I25C1

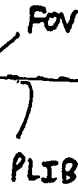


FIG. 1I 25C2

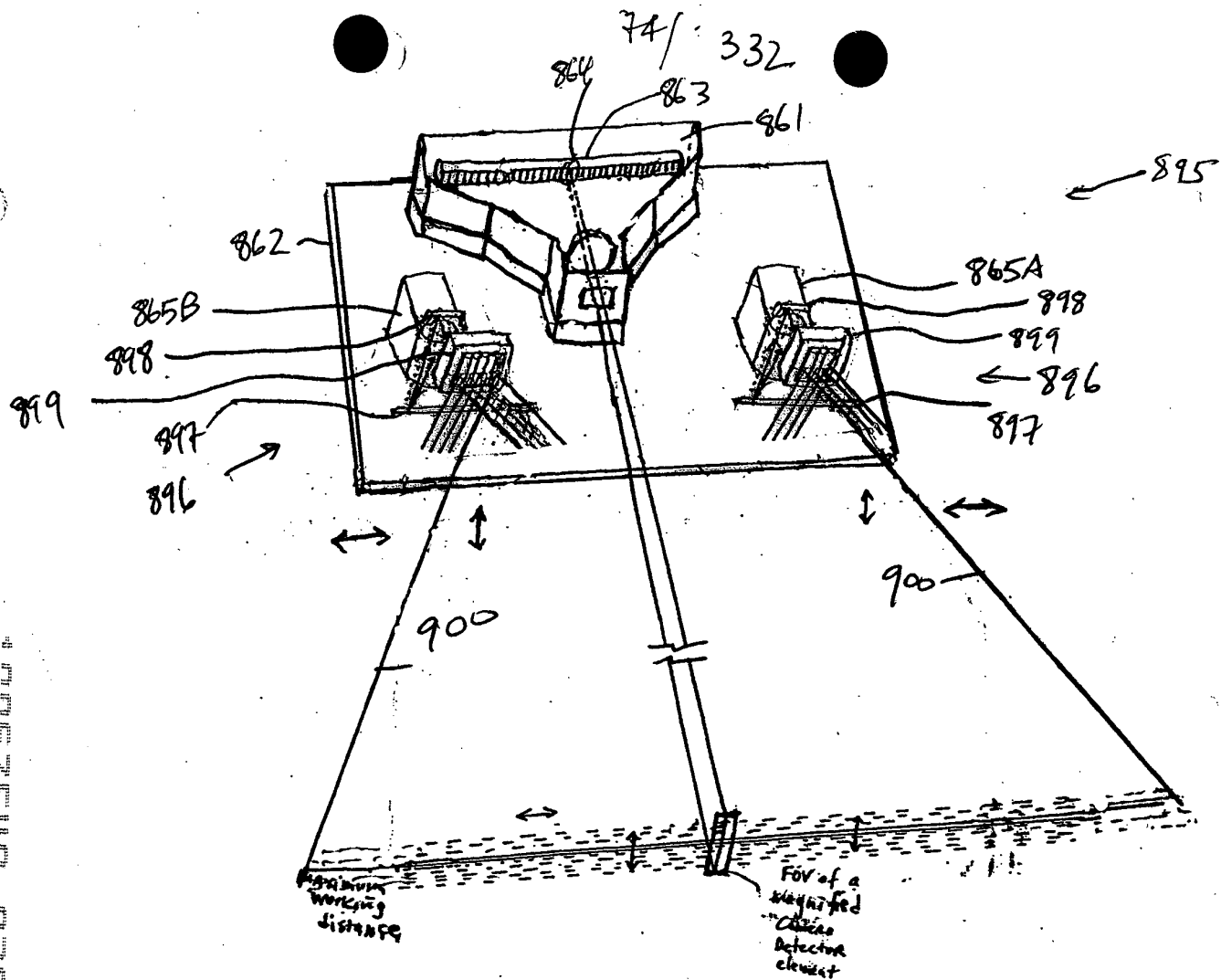


FIG. 1I25D1

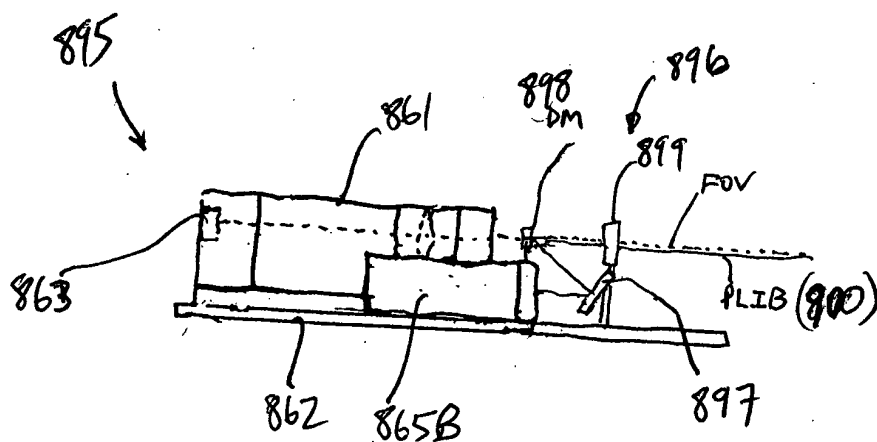


FIG. 1I25D2

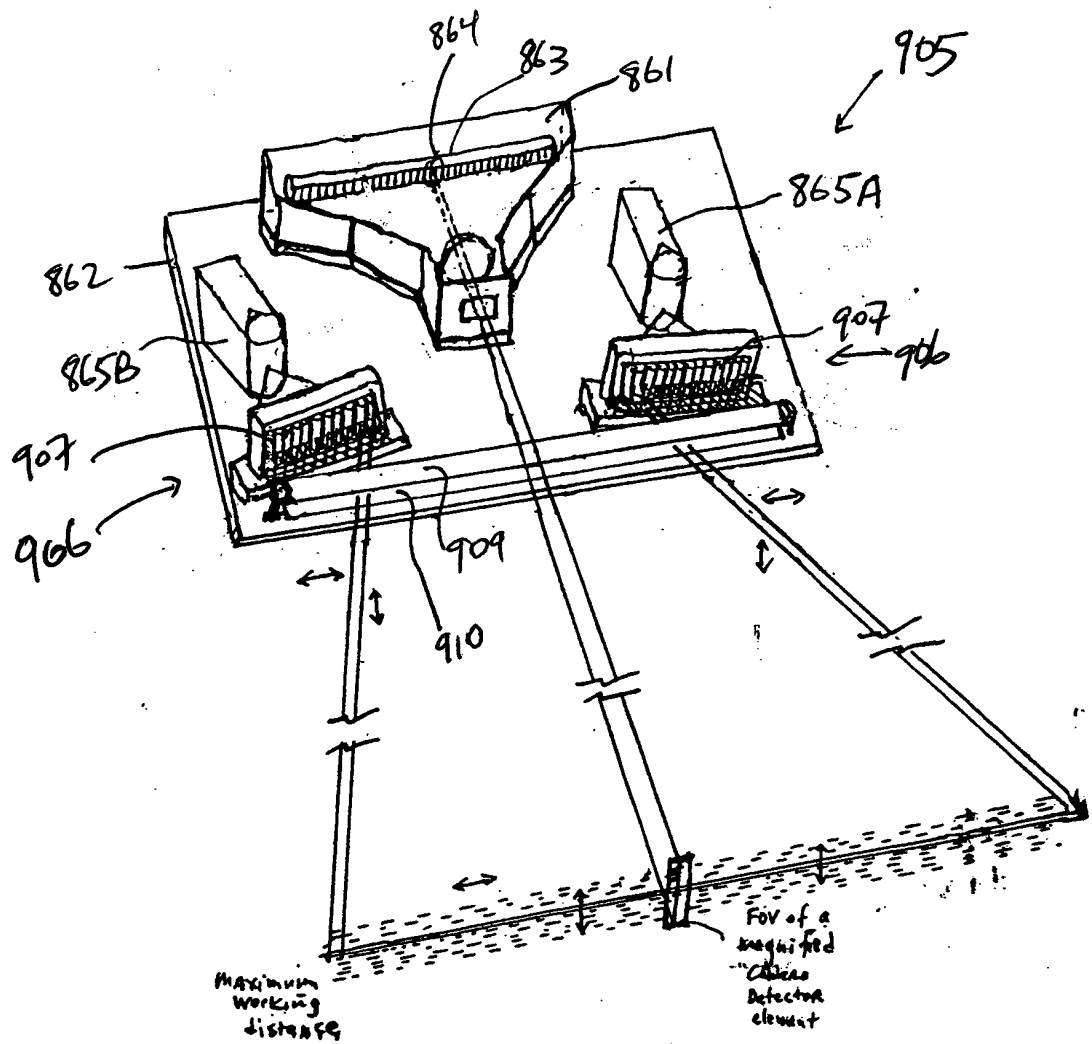


FIG. 1I25E1

* Lateral and Transverse Microoscillation of PLIB

905

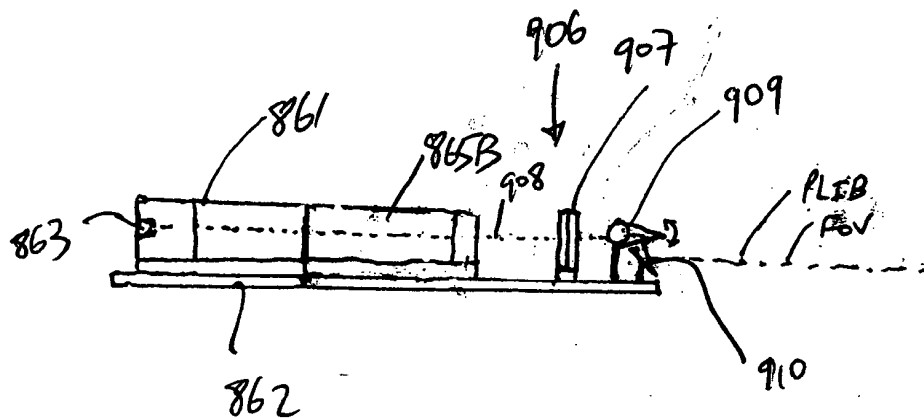
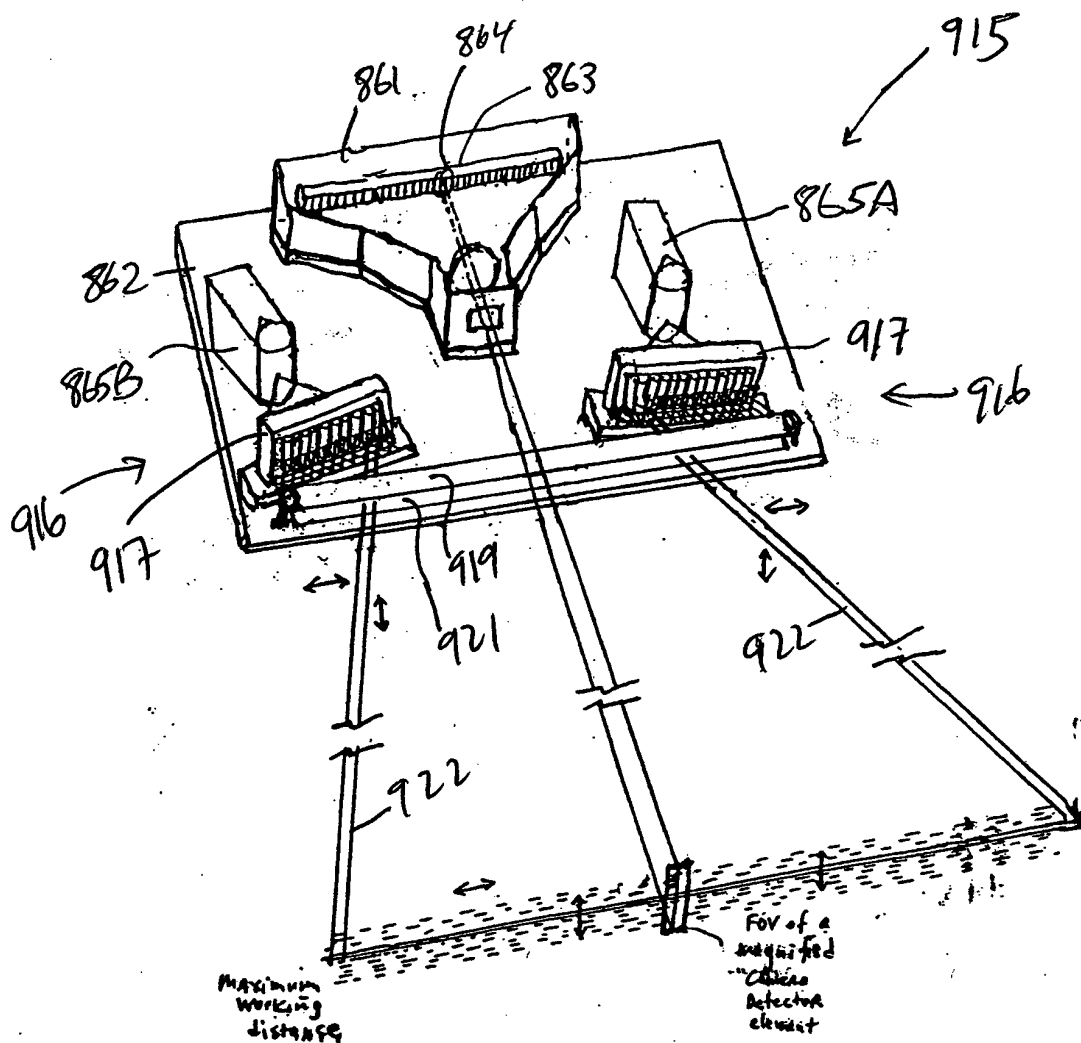


FIG. 1I25E2

76/ 332



* Lateral and Transverse Microoscillation of PLIB

FIG. 1I25F1

915

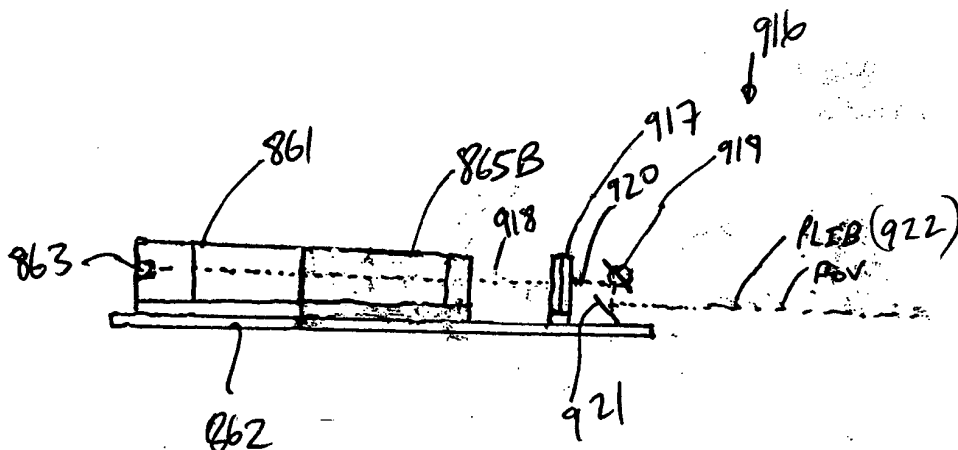
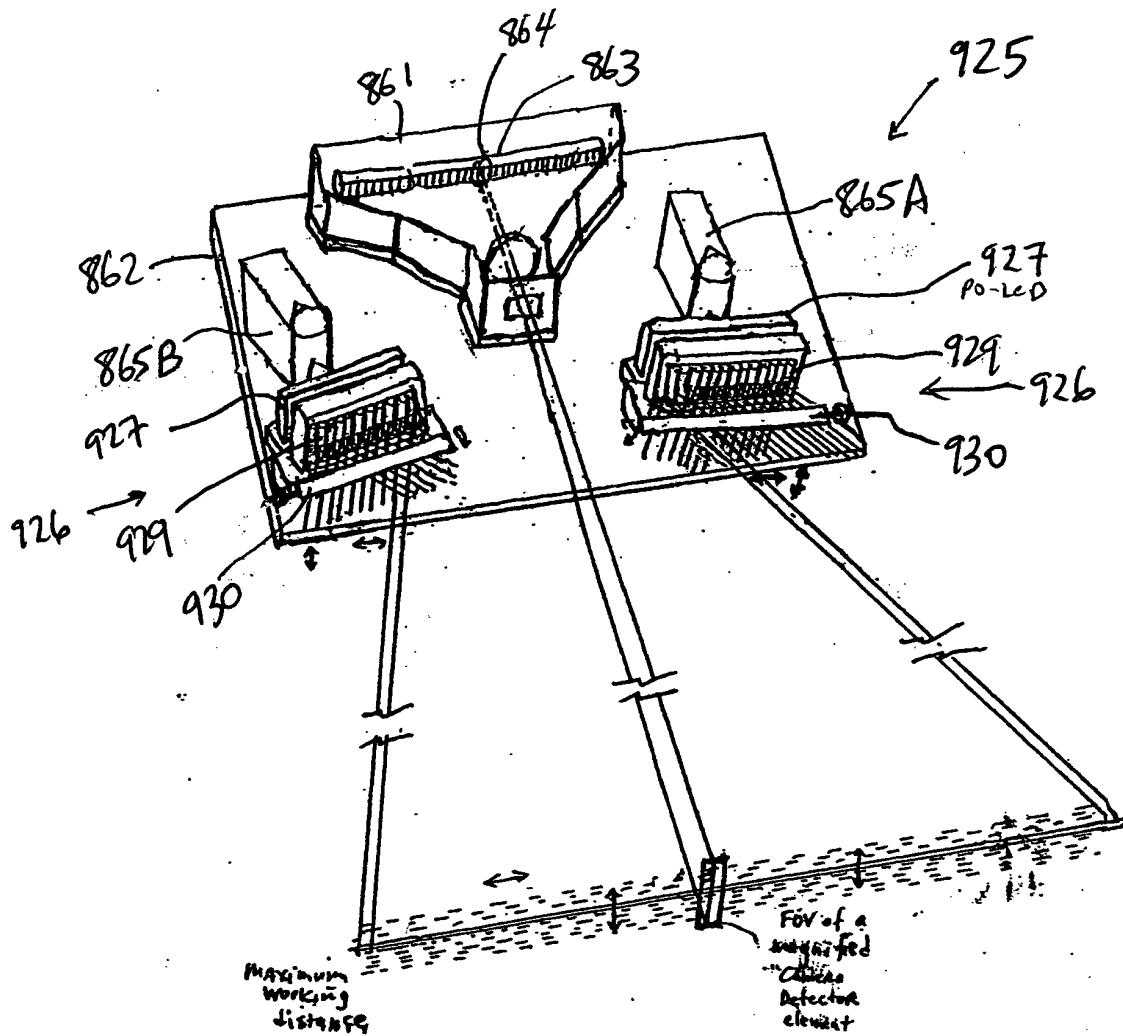


FIG. 1I25F2

77/ 332



* Lateral and Transverse Misalignment of PLIB

FIG. 1I25G1

925

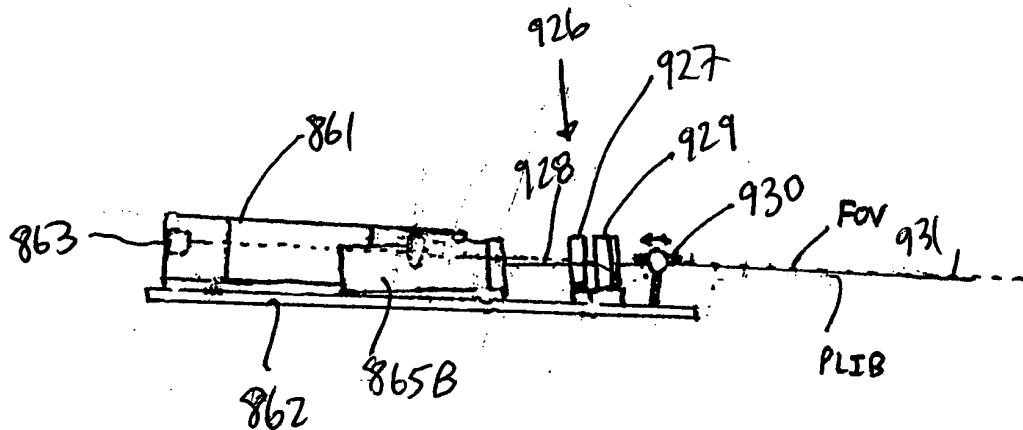
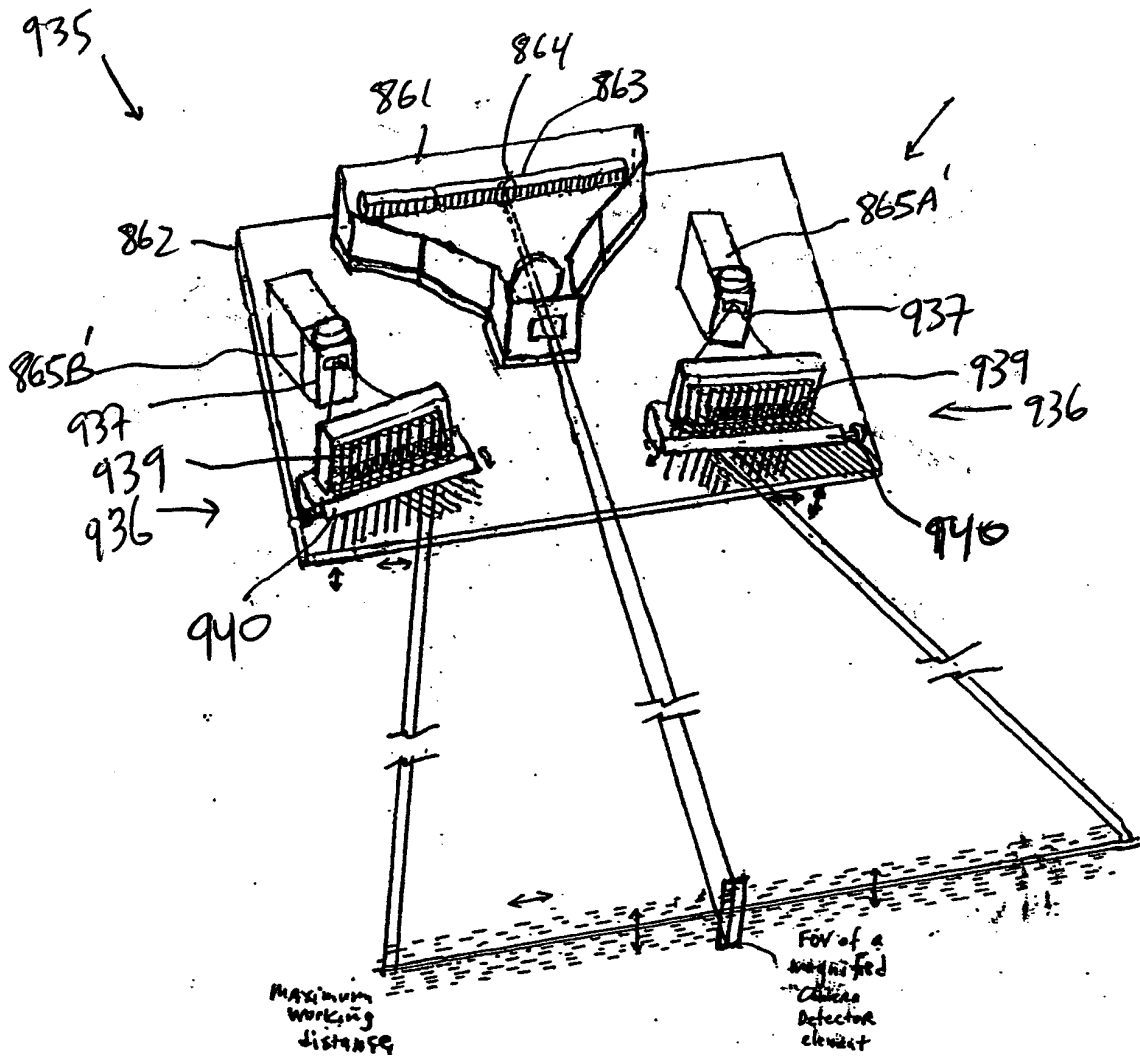


FIG. 1I25G2

78/ 332



* lateral and Transverse Maxioscillation of PLIB

FIG 1I25H1

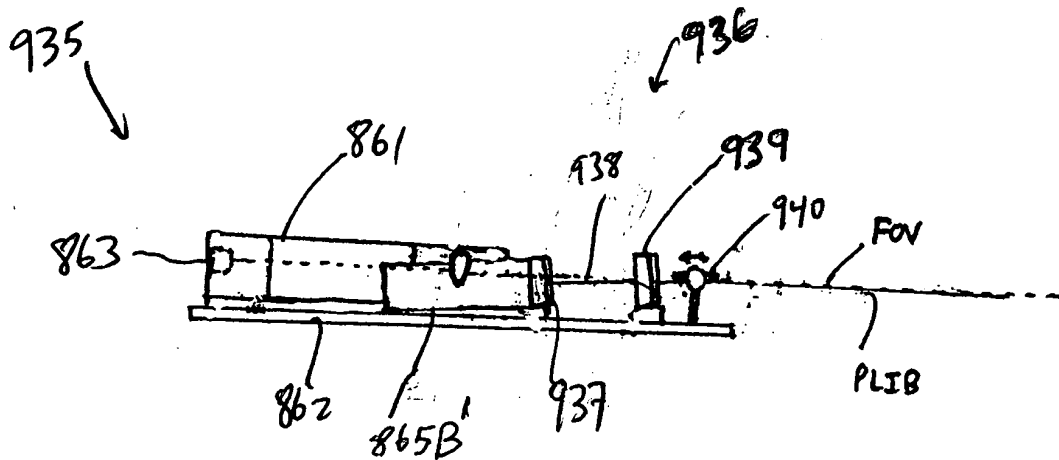
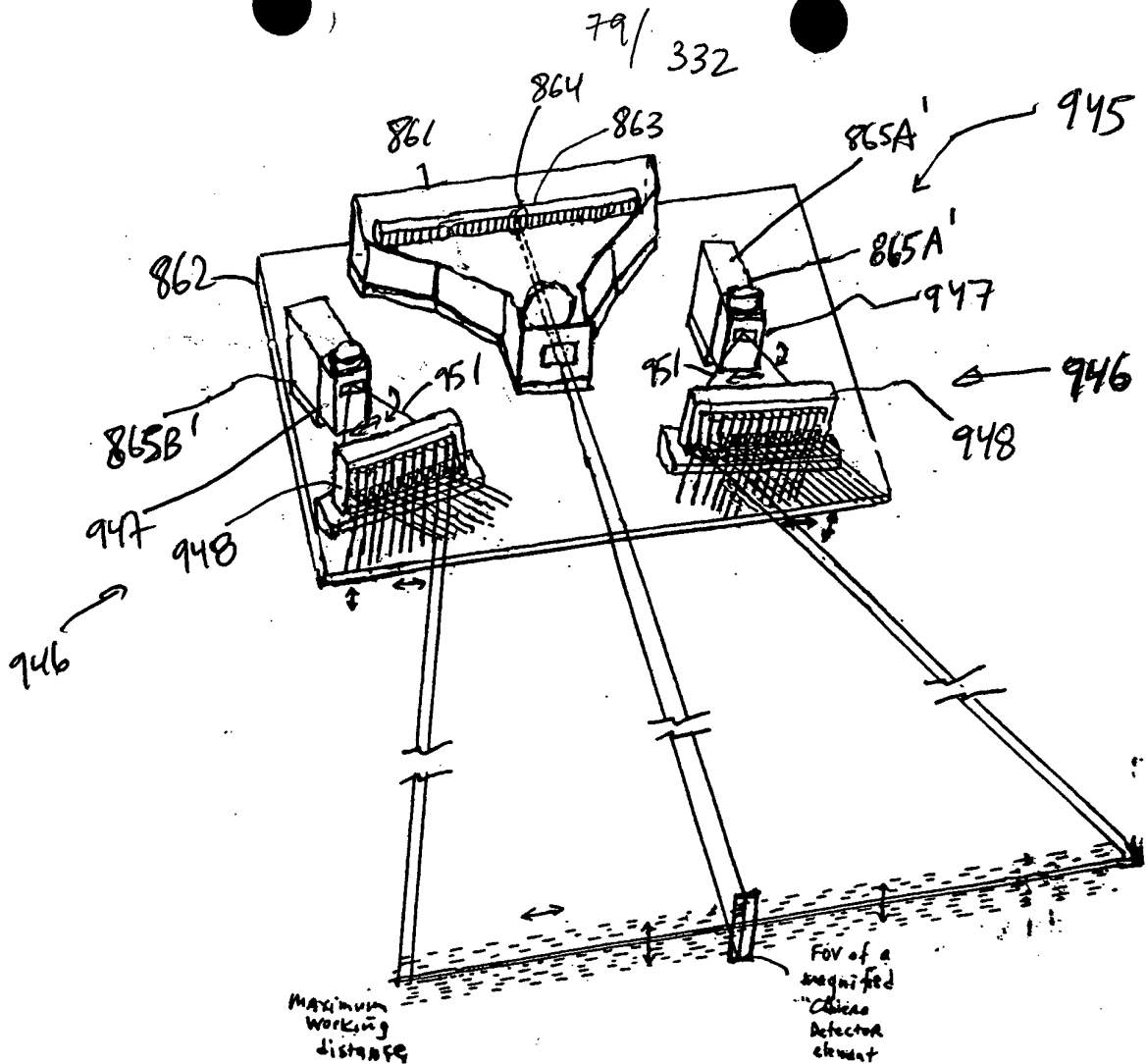


FIG. 1I25H2



Lateral and
Transverse
Translation of PLB

FIG. 1I25I1

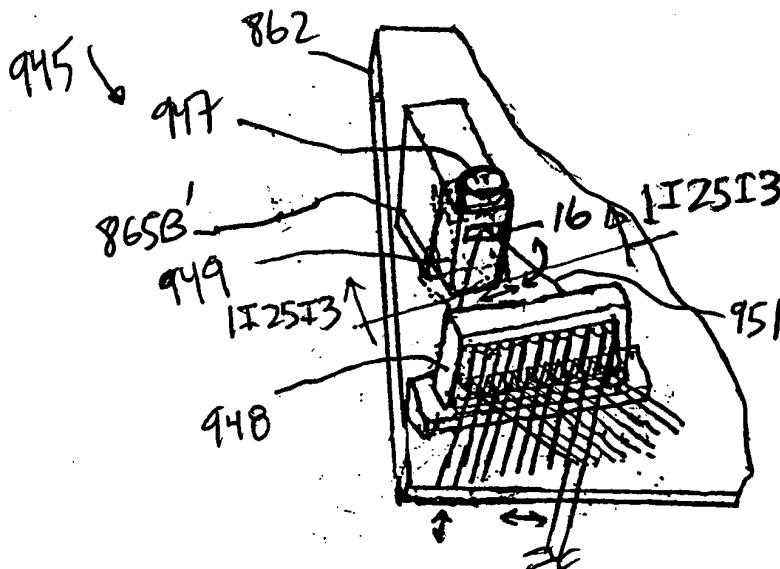


FIG. 1I25I2

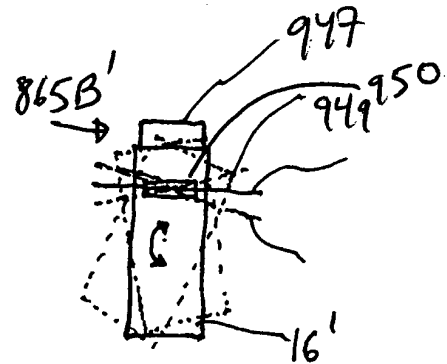
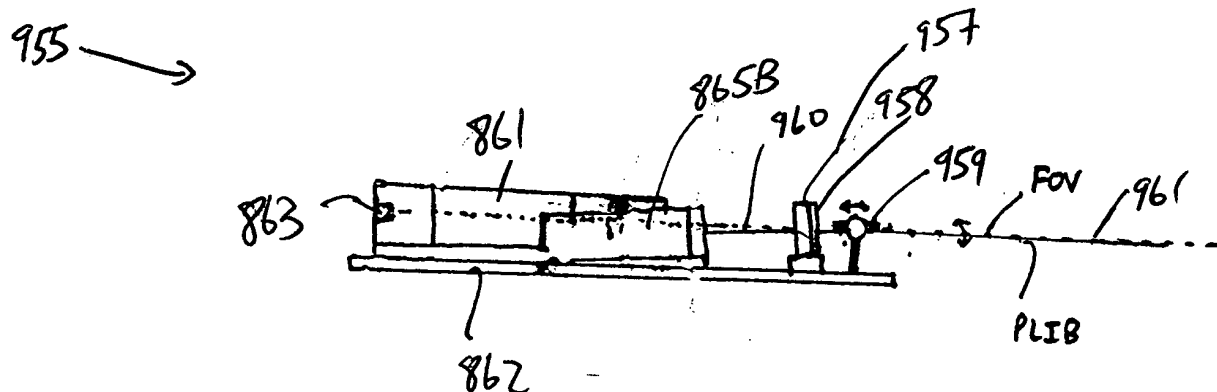
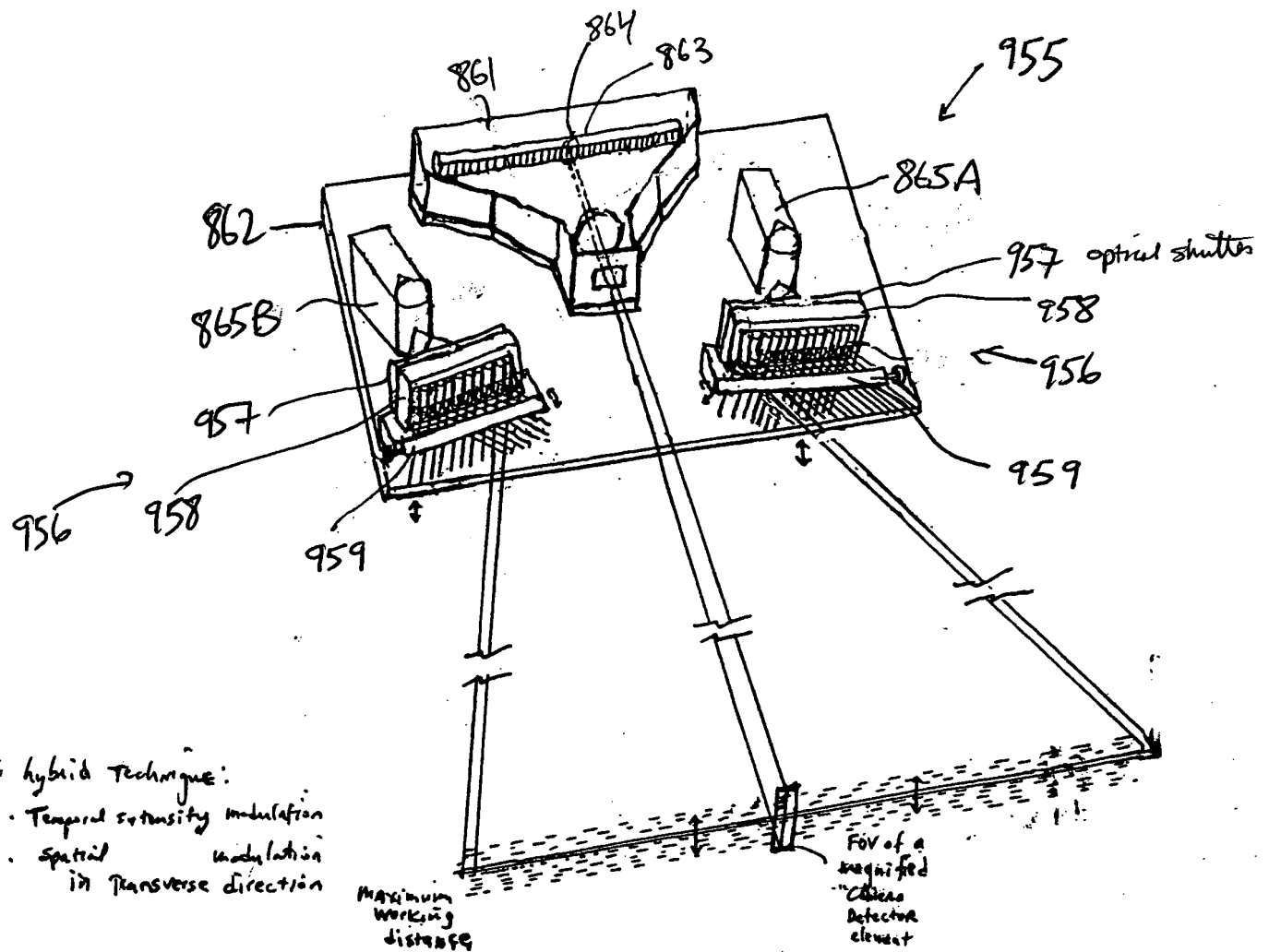
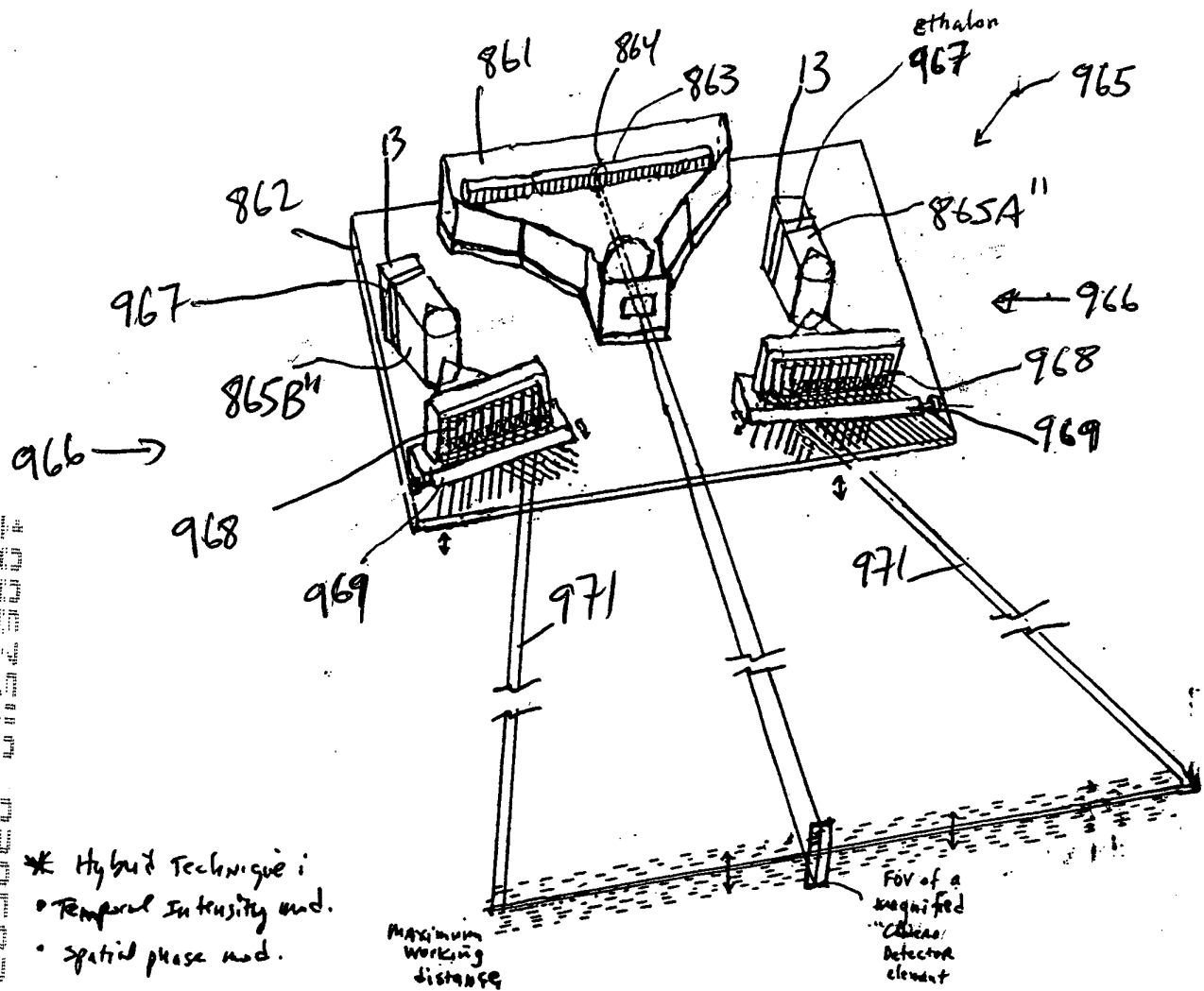


FIG. 1I25I3



81/ 332



- * Hybrid Technique:
- Temporal intensity mod.
 - Spatial phase mod.

* Transverse
Micro-oscillation of PLIB



FIG. 1I25K1

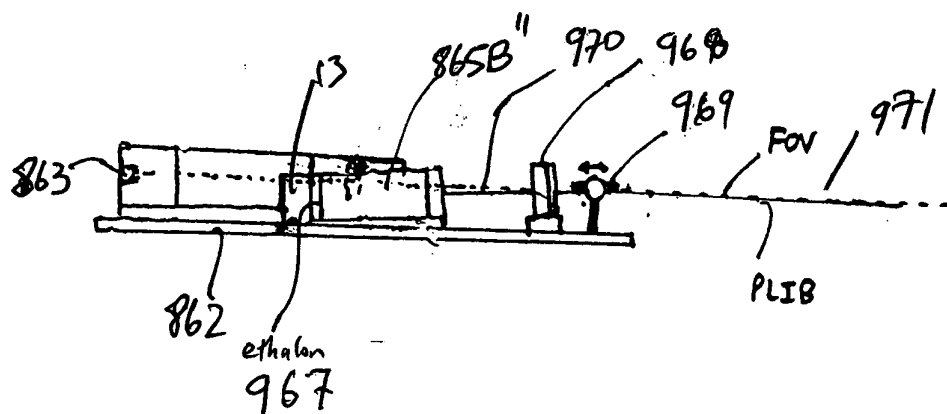
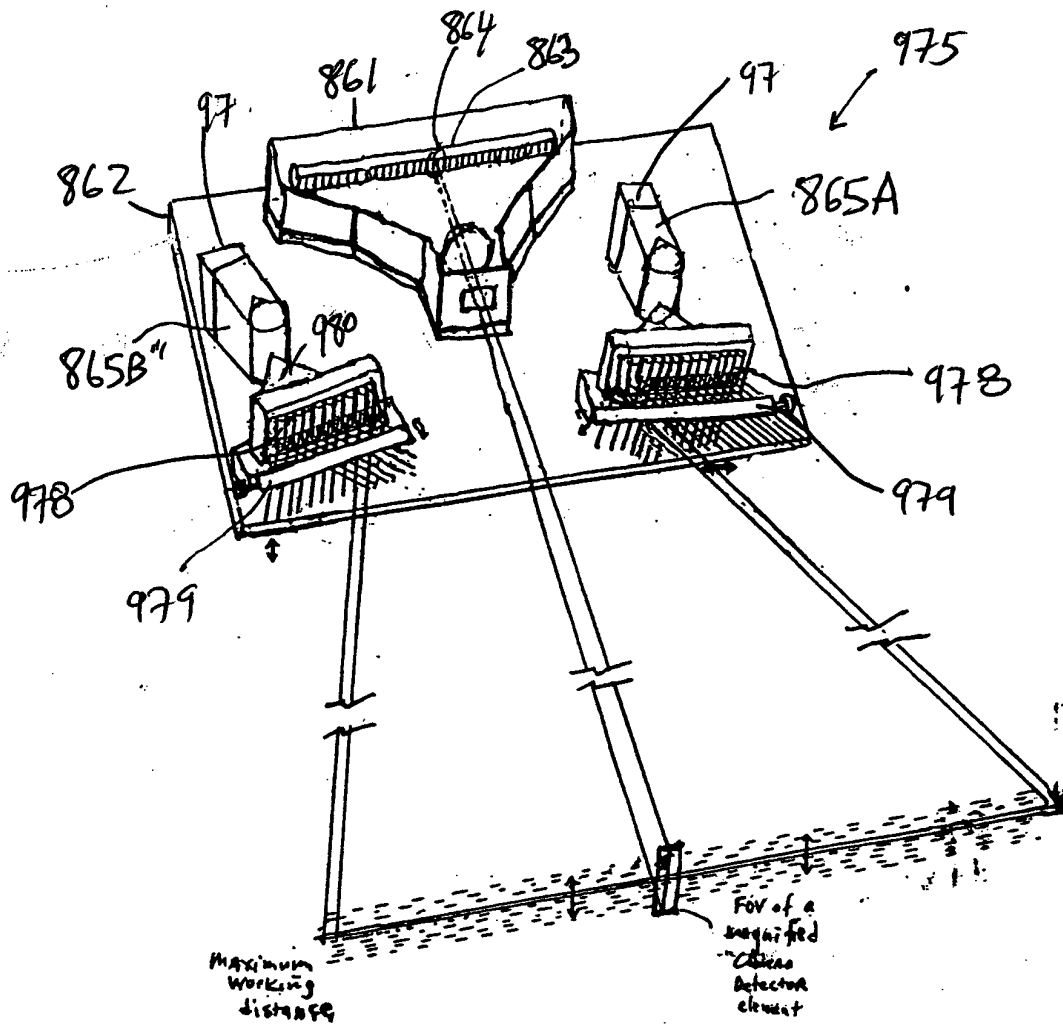


FIG. 1I25K2



- hybrid :
 - Temp freq. mod.
 - spatial phase mod.

TRANSVERSE Microoscillation of PLIB

FIG. 1I Z5L1

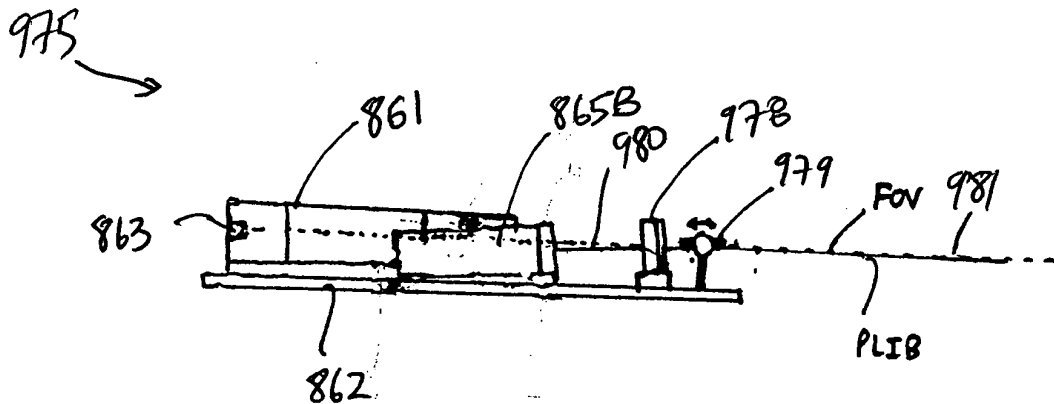
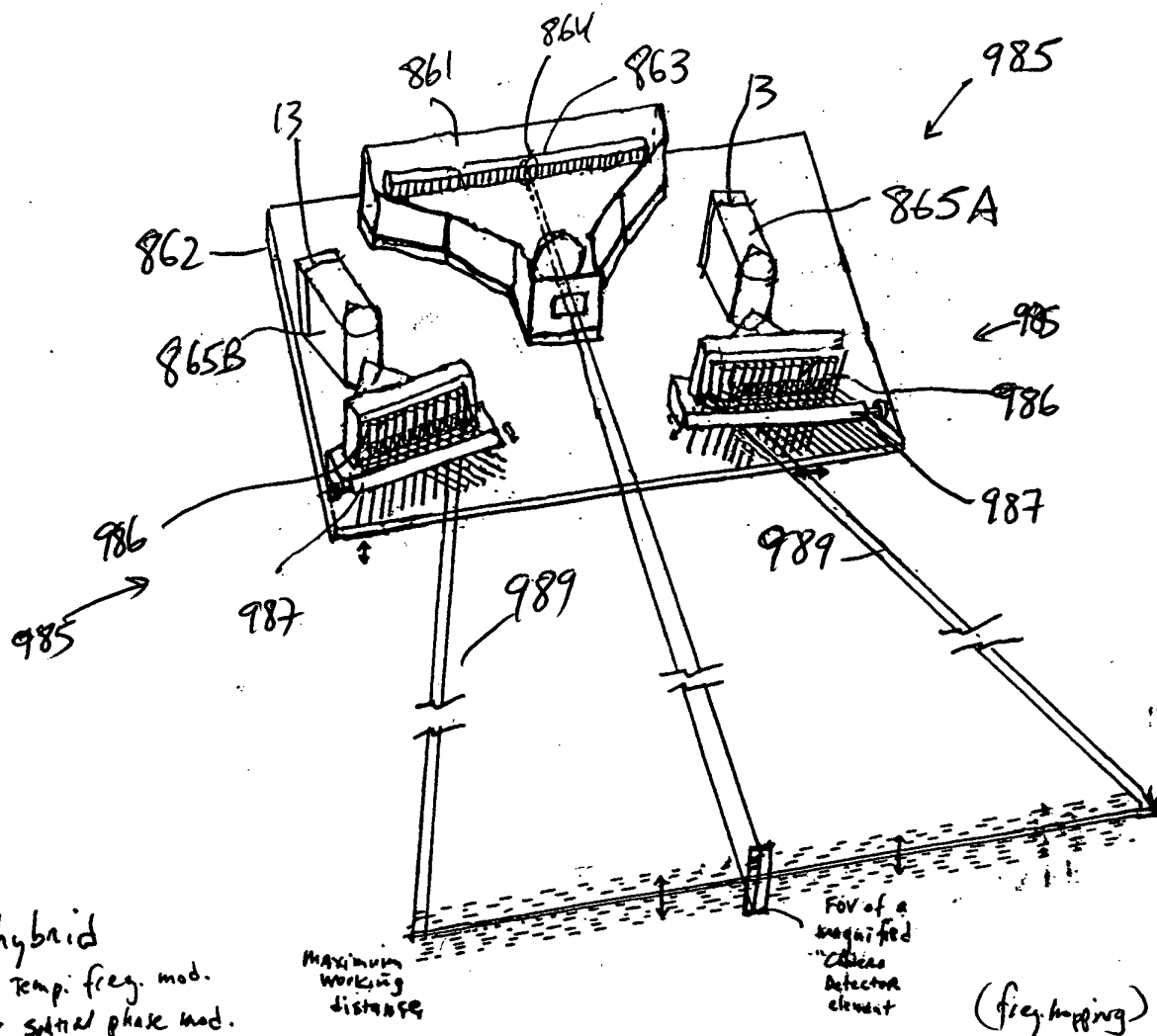


FIG. 1I25L2

83/ 332



TRANSVERSE
MICROSCILLATION OF PLIB

FIG. 1I25M1

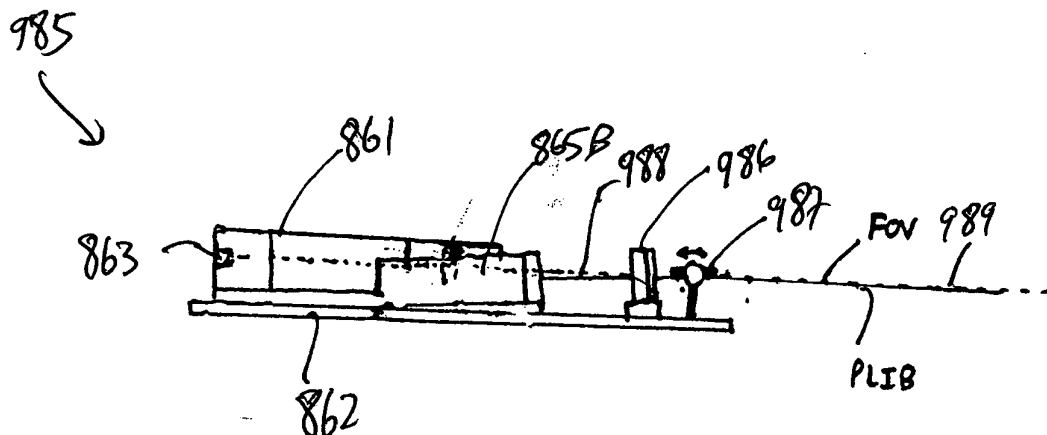
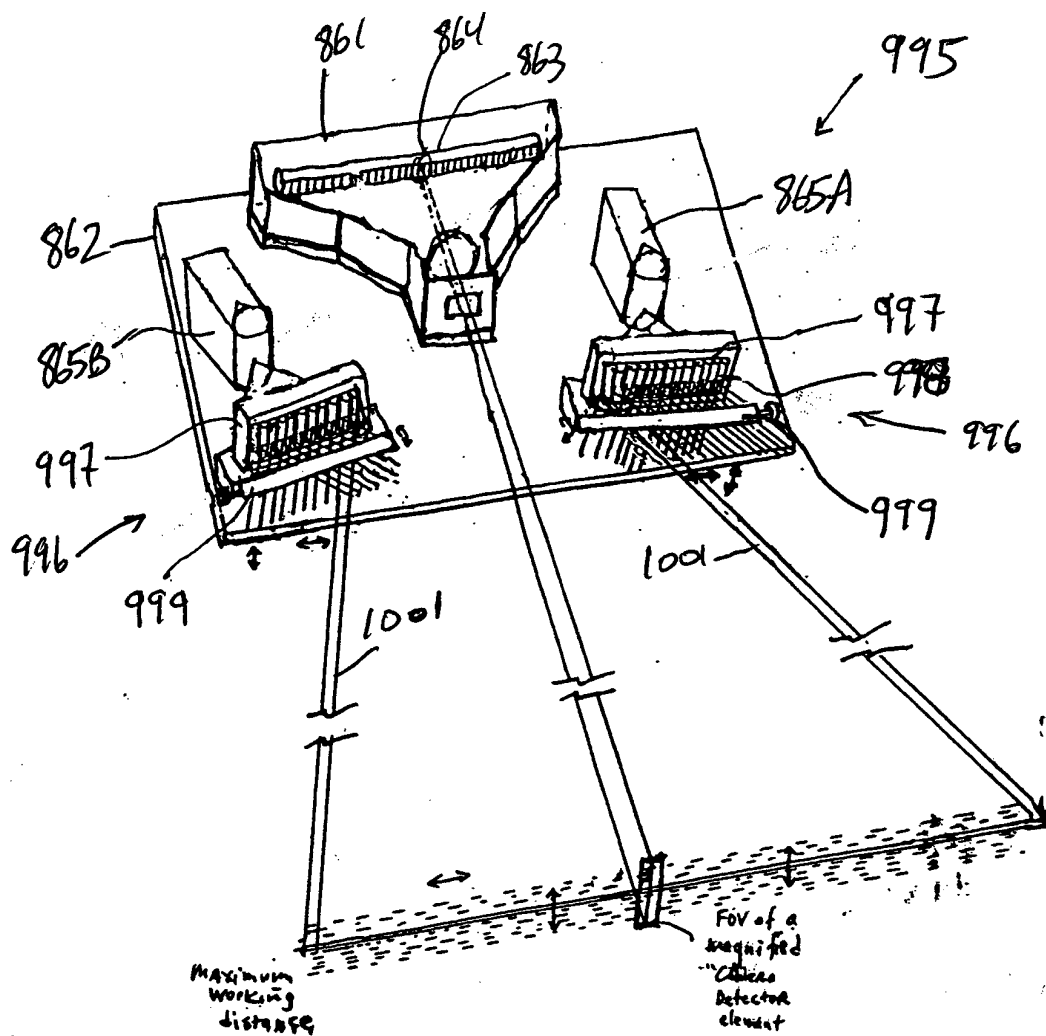


FIG. 1I25M2

84/332



- hybrid:
 - spatial intensity mod.
 - spatial phase
- * Lateral and Transverse Microoscillation of PLIB

FIG. 1I25N1

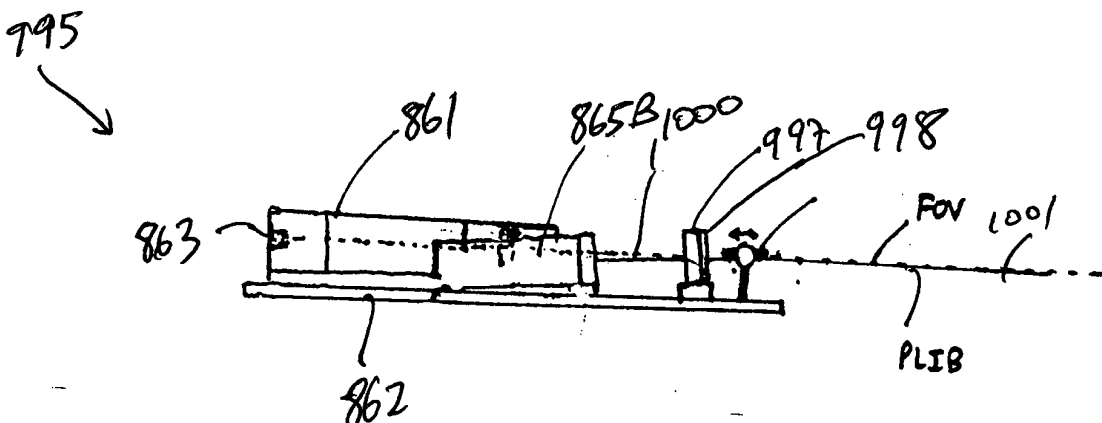


FIG. 1I25NZ

85/332

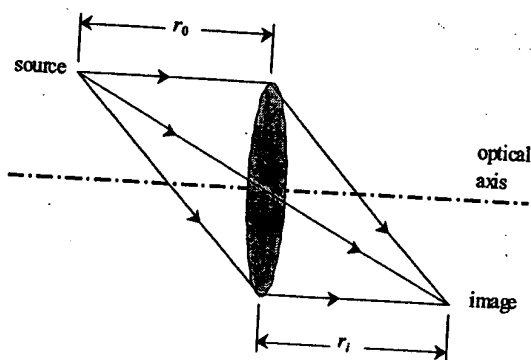


FIG. 1H1

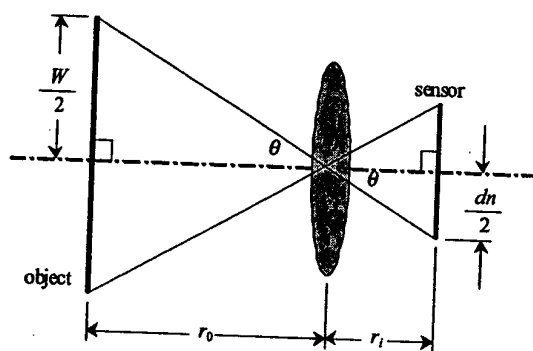


FIG. 1H2

86/332

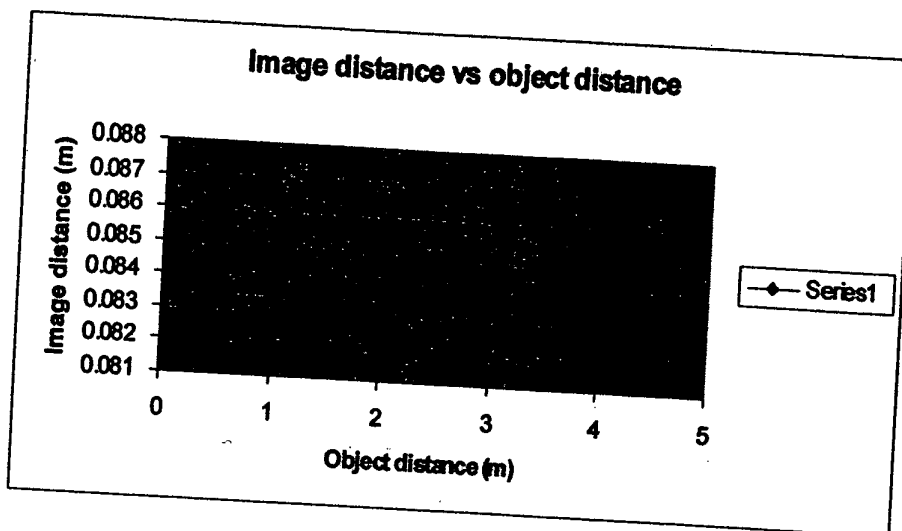


FIG. 1H3

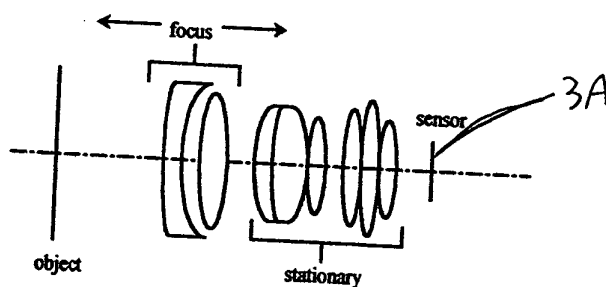


FIG. 1H4

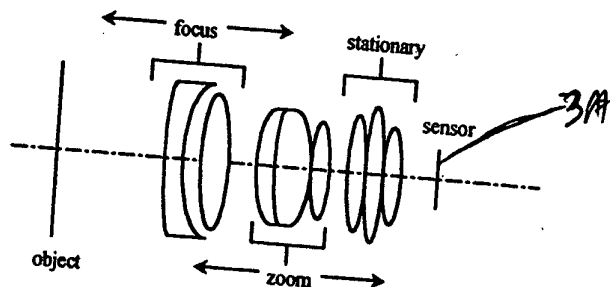


FIG. 1H5

87/332

Fixed focal length lens
Cases

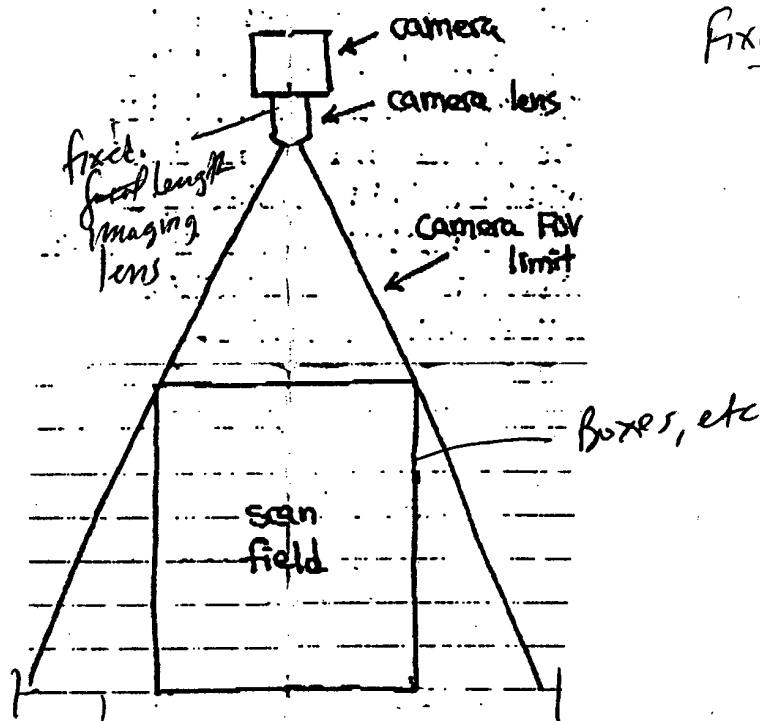


FIG. 1K1
conveyor 34

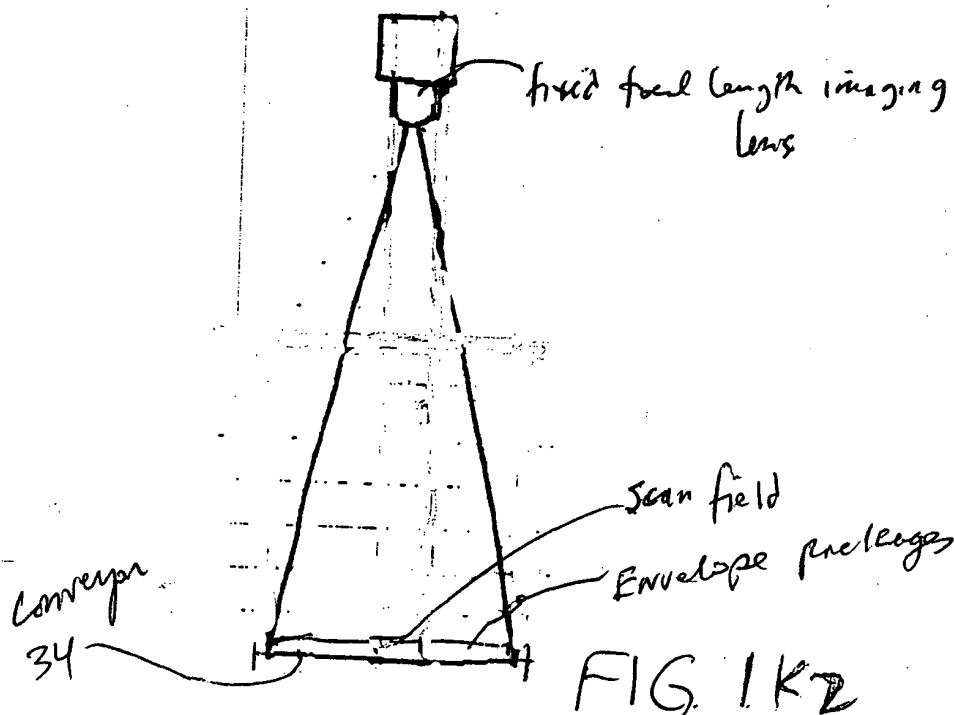
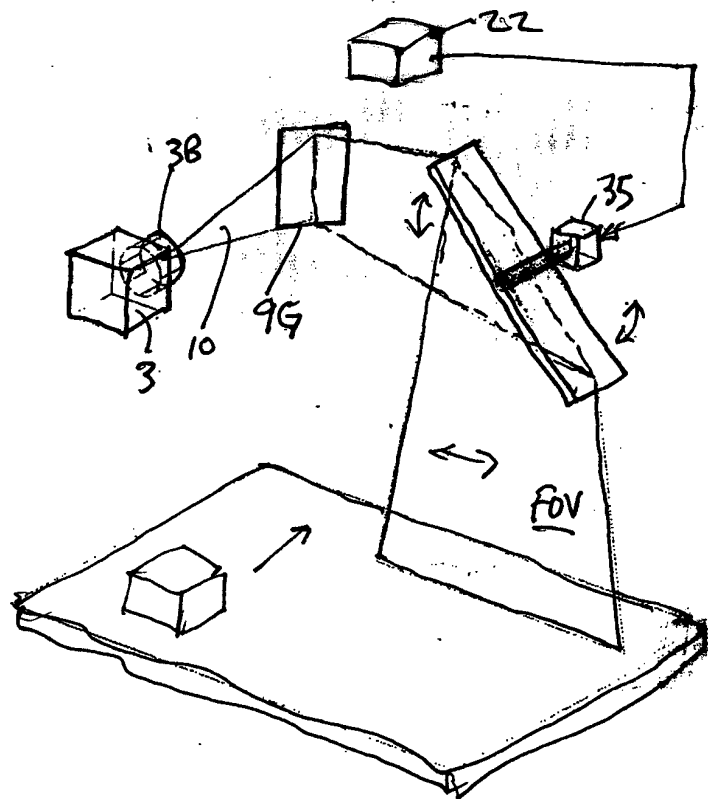
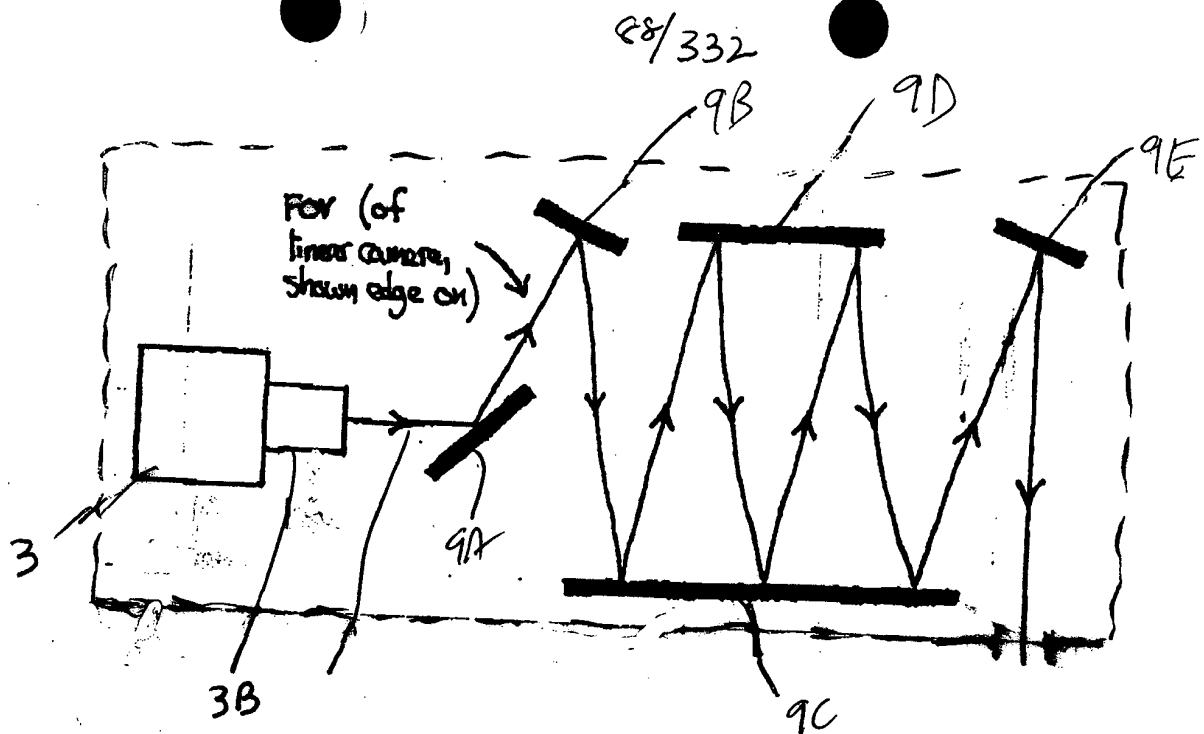


FIG. 1K2



89/332

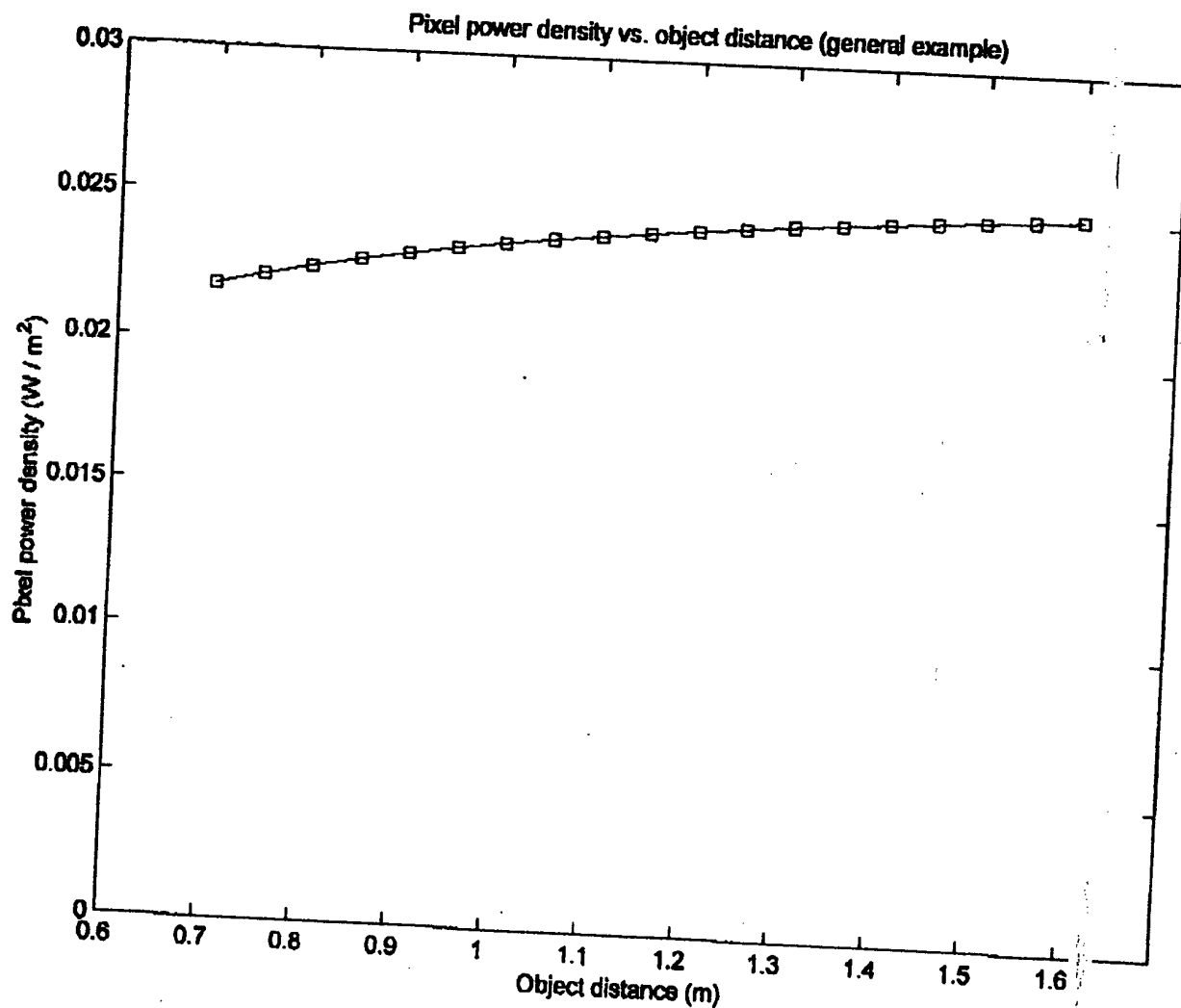


FIG-1M1

90/332

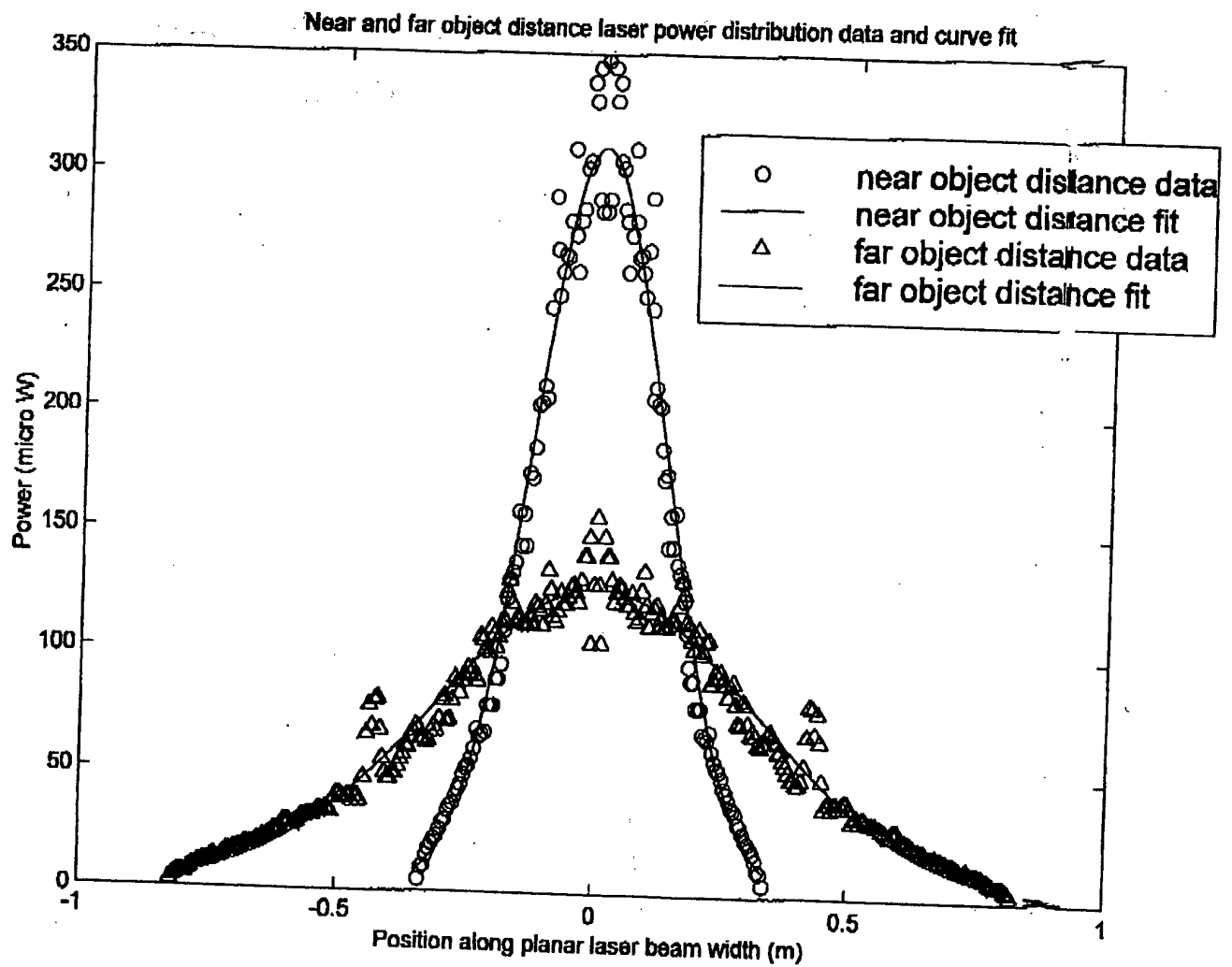


FIG. 1M2

91/332

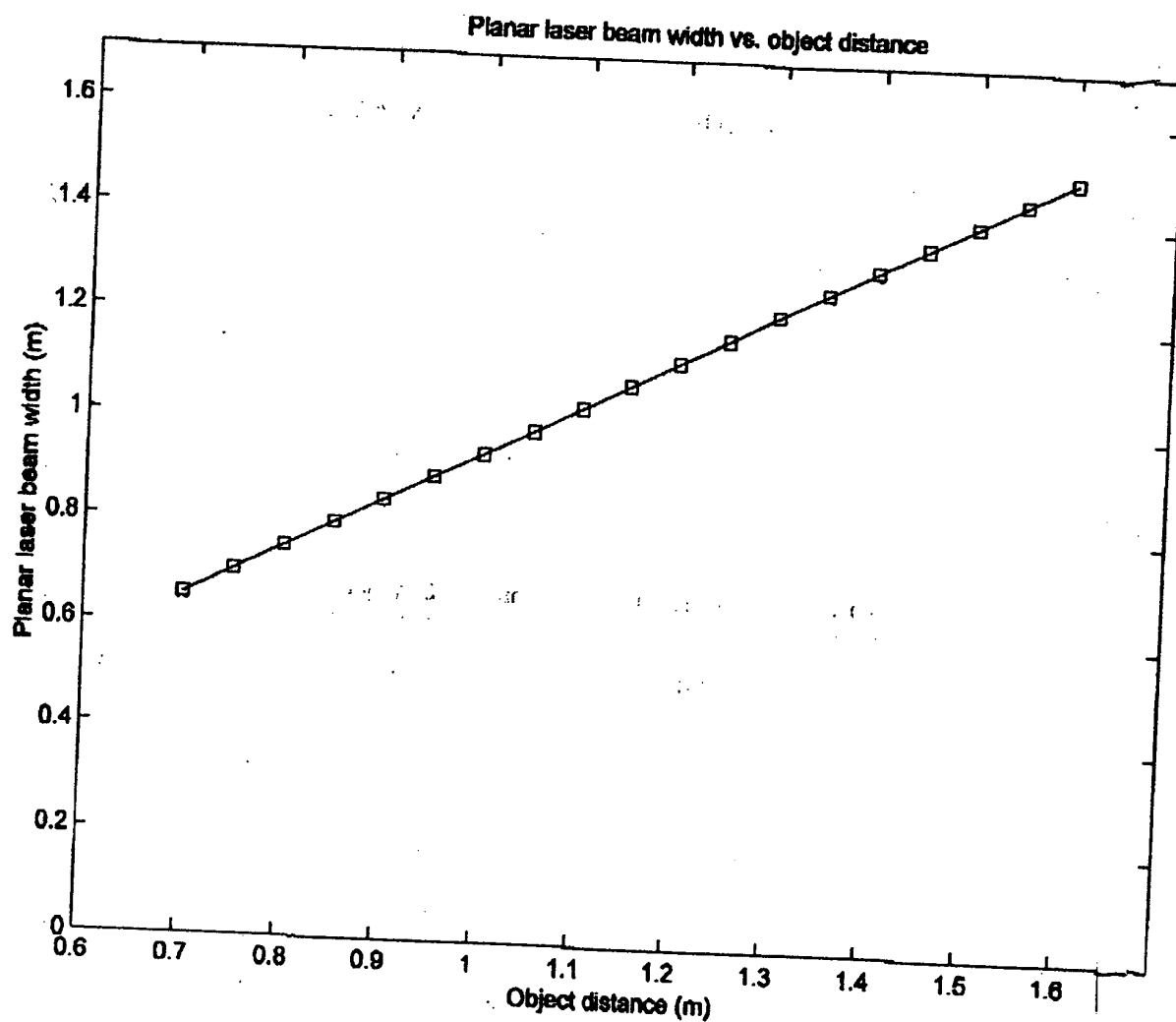


FIG. 1M3

92/332

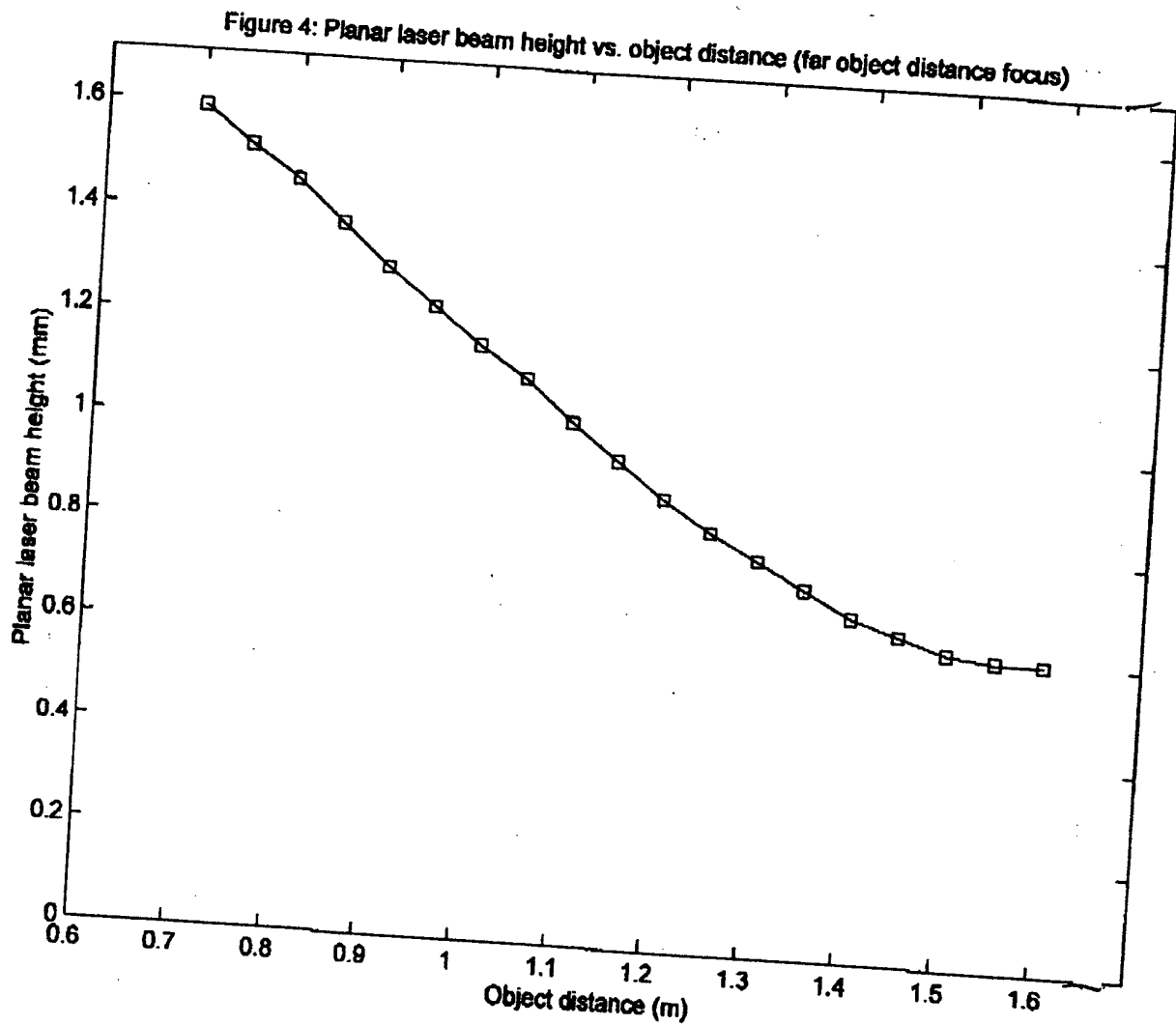


FIG. 1M4

93/332

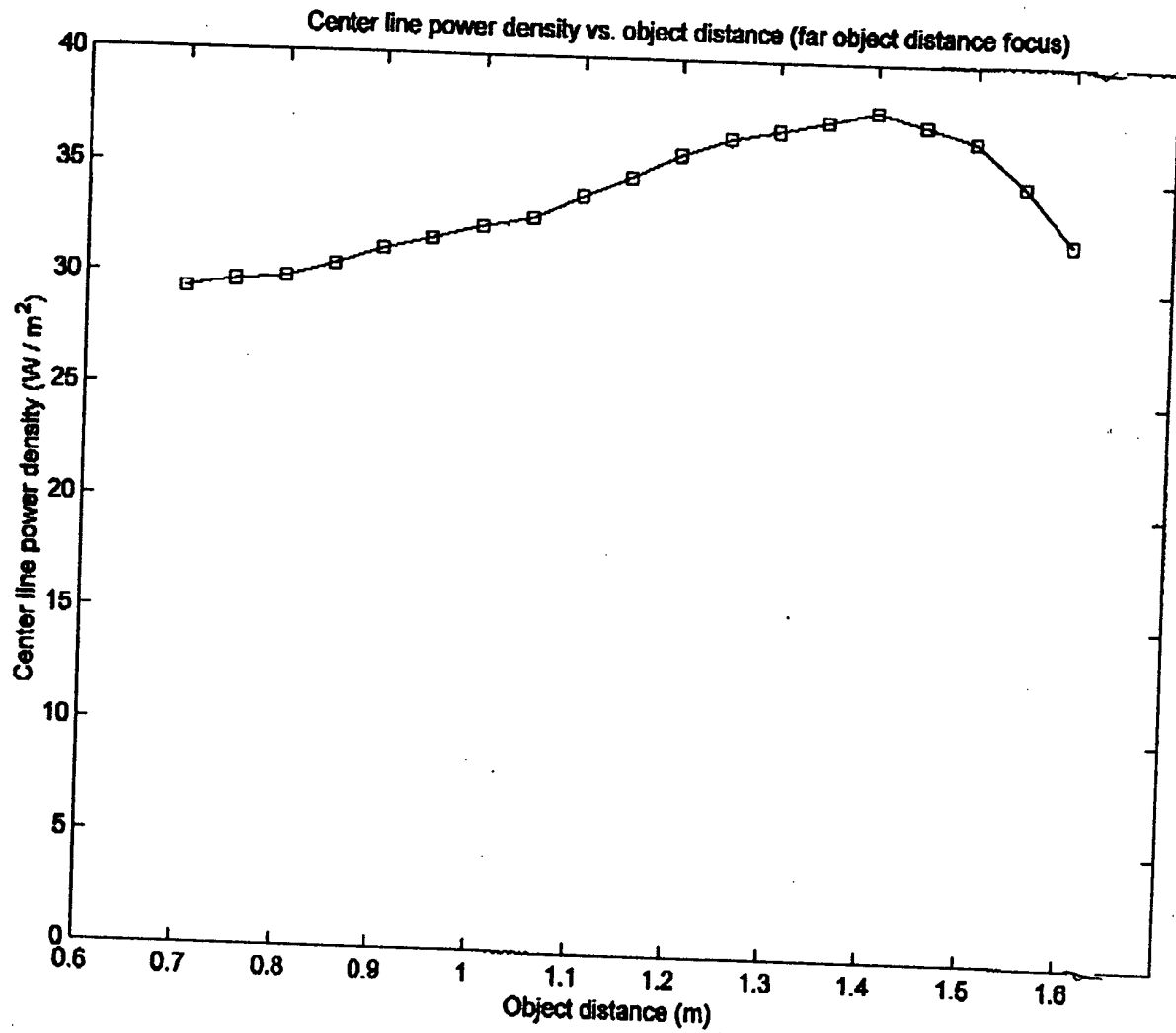


FIG. 1N

94/332

Figure 6: Pixel power densities vs. object distance

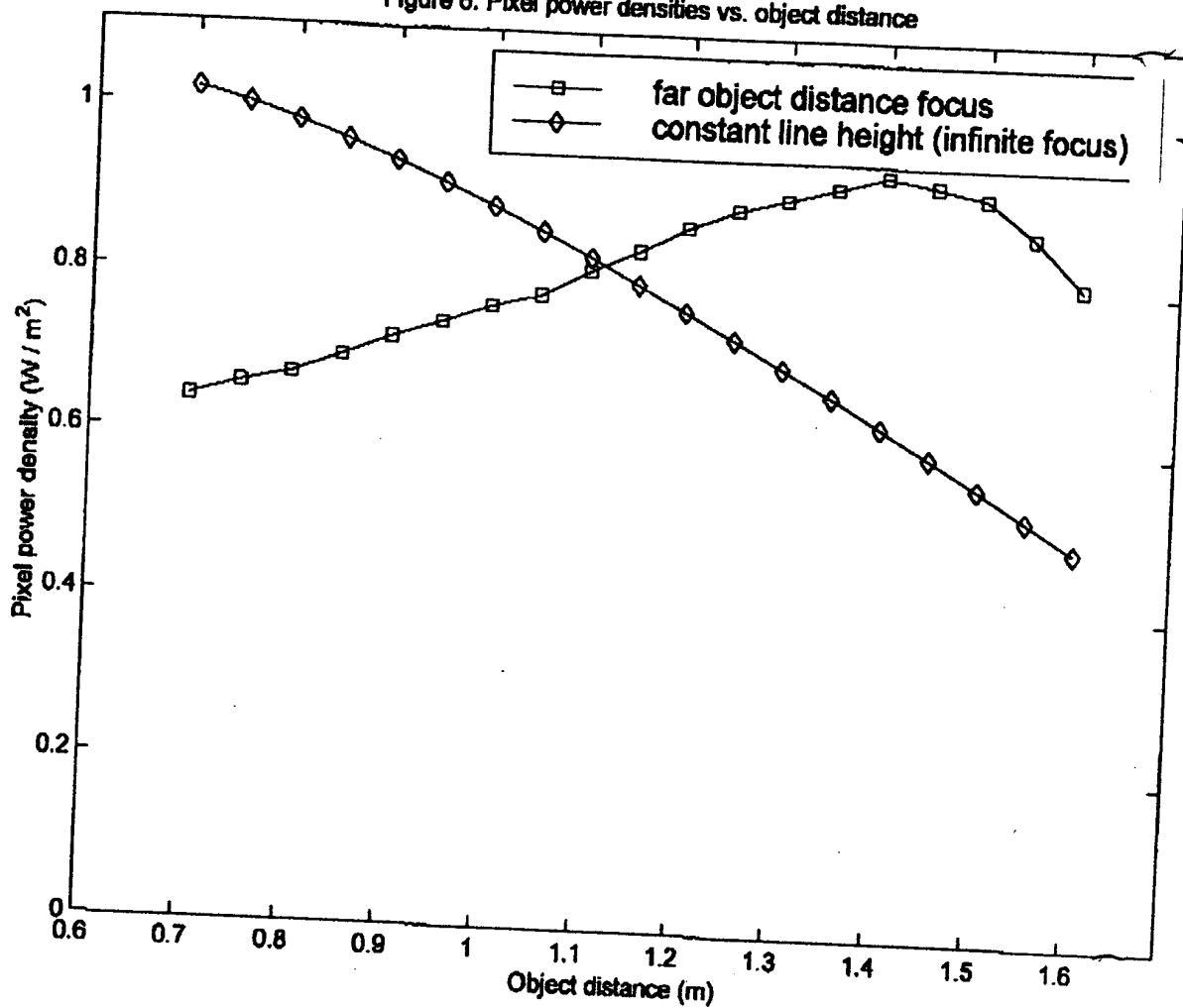


FIG. 10

95/332

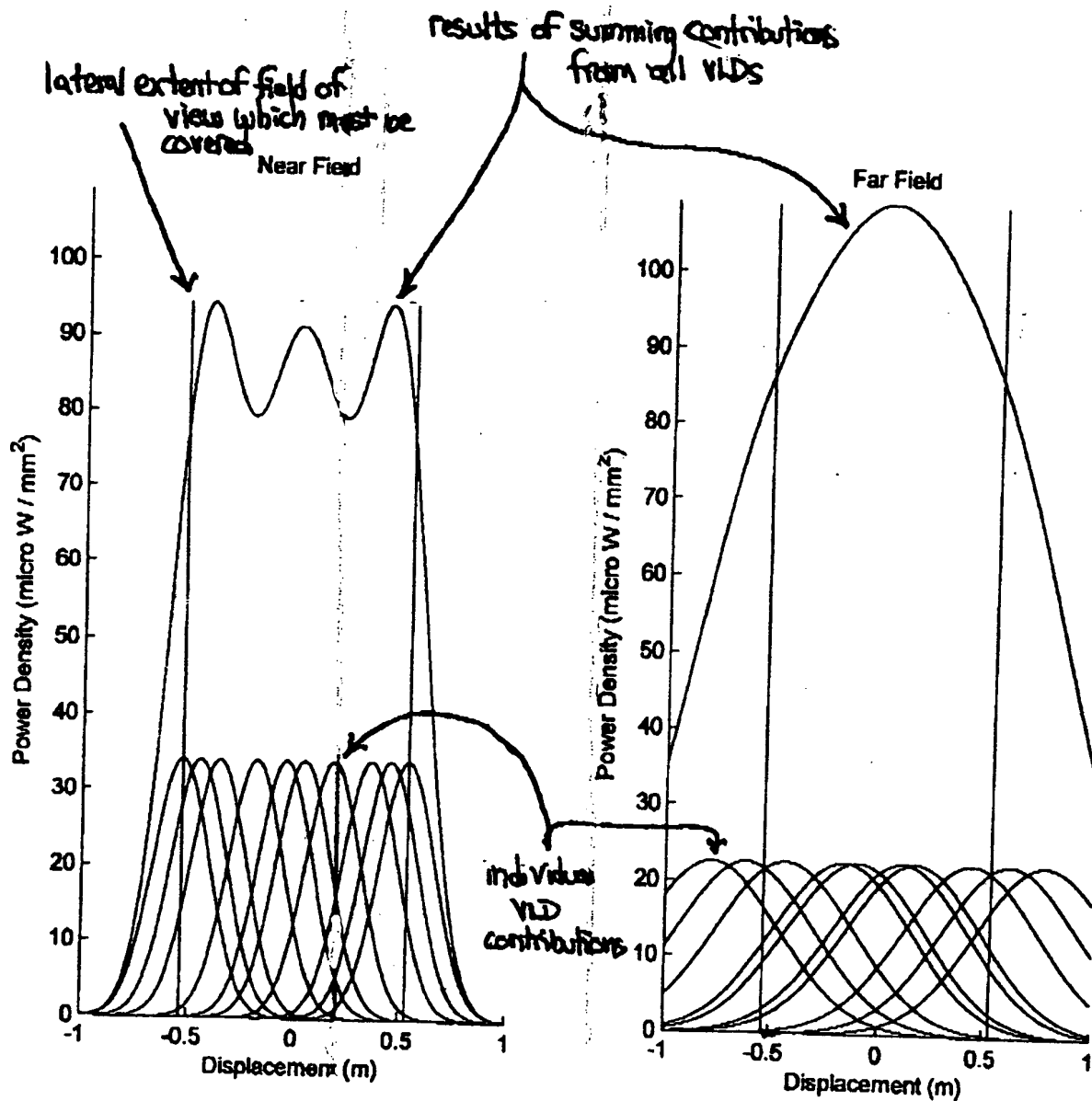


FIG 1P1

FIG 1P2

96/332

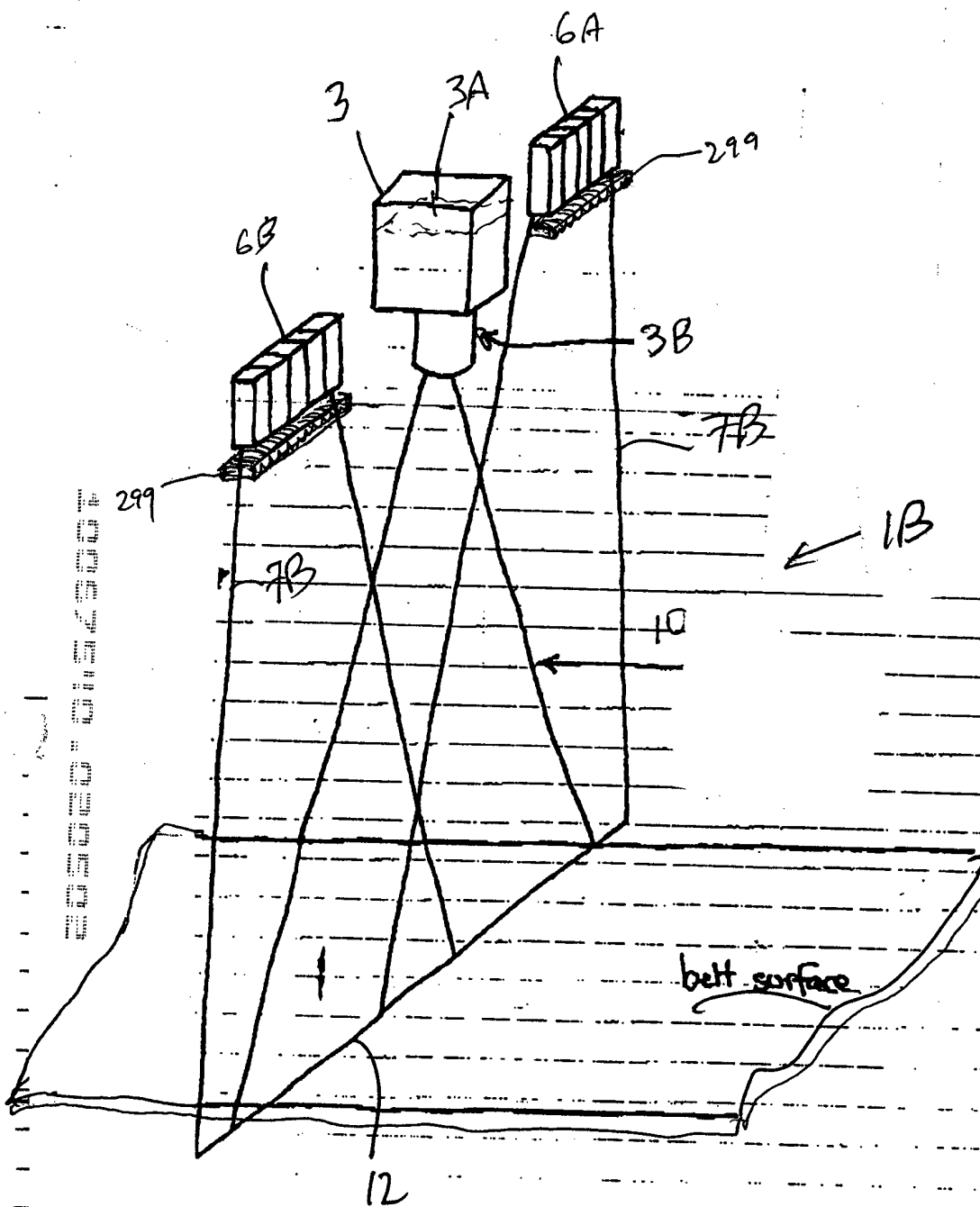


FIG. 101

97/332

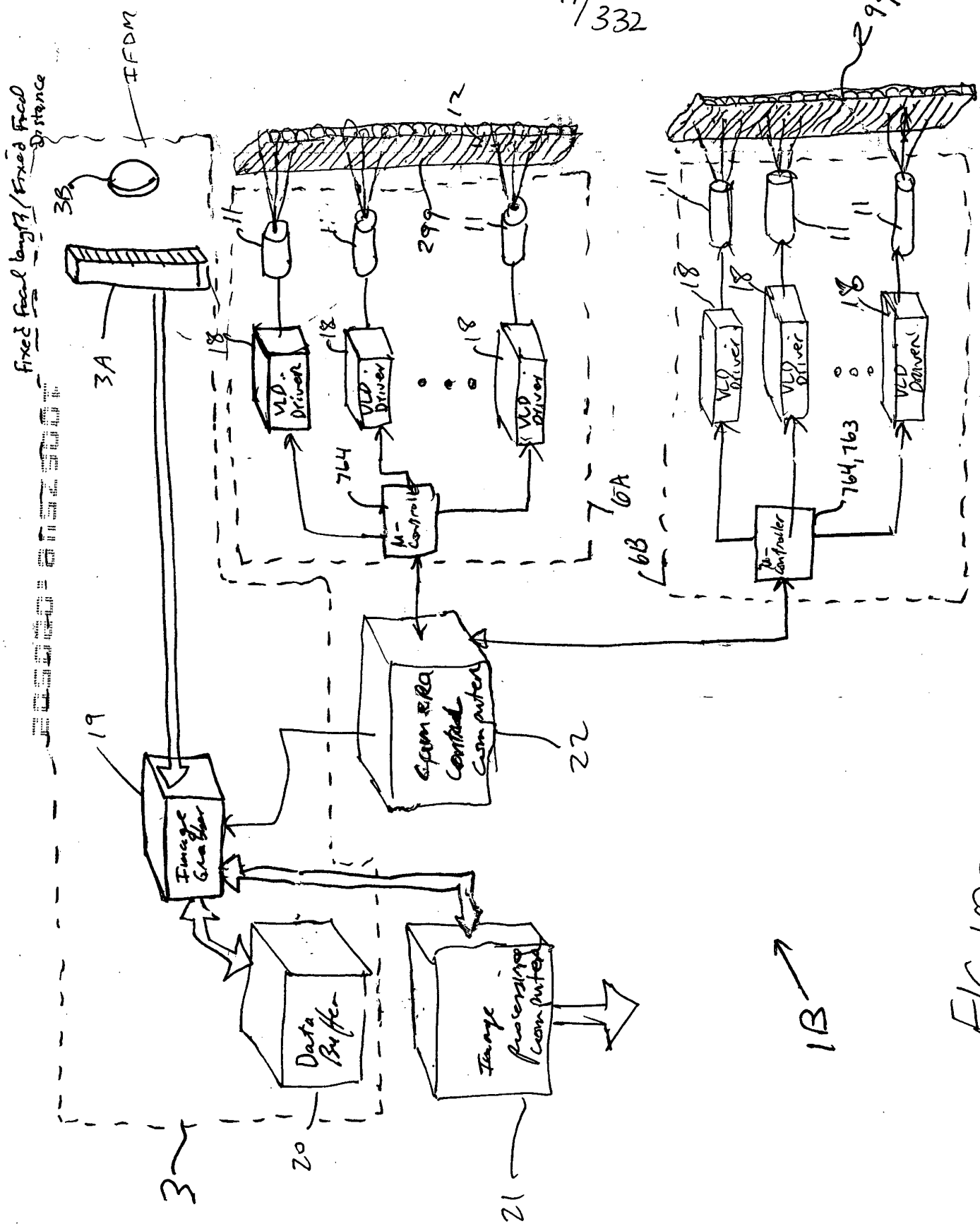
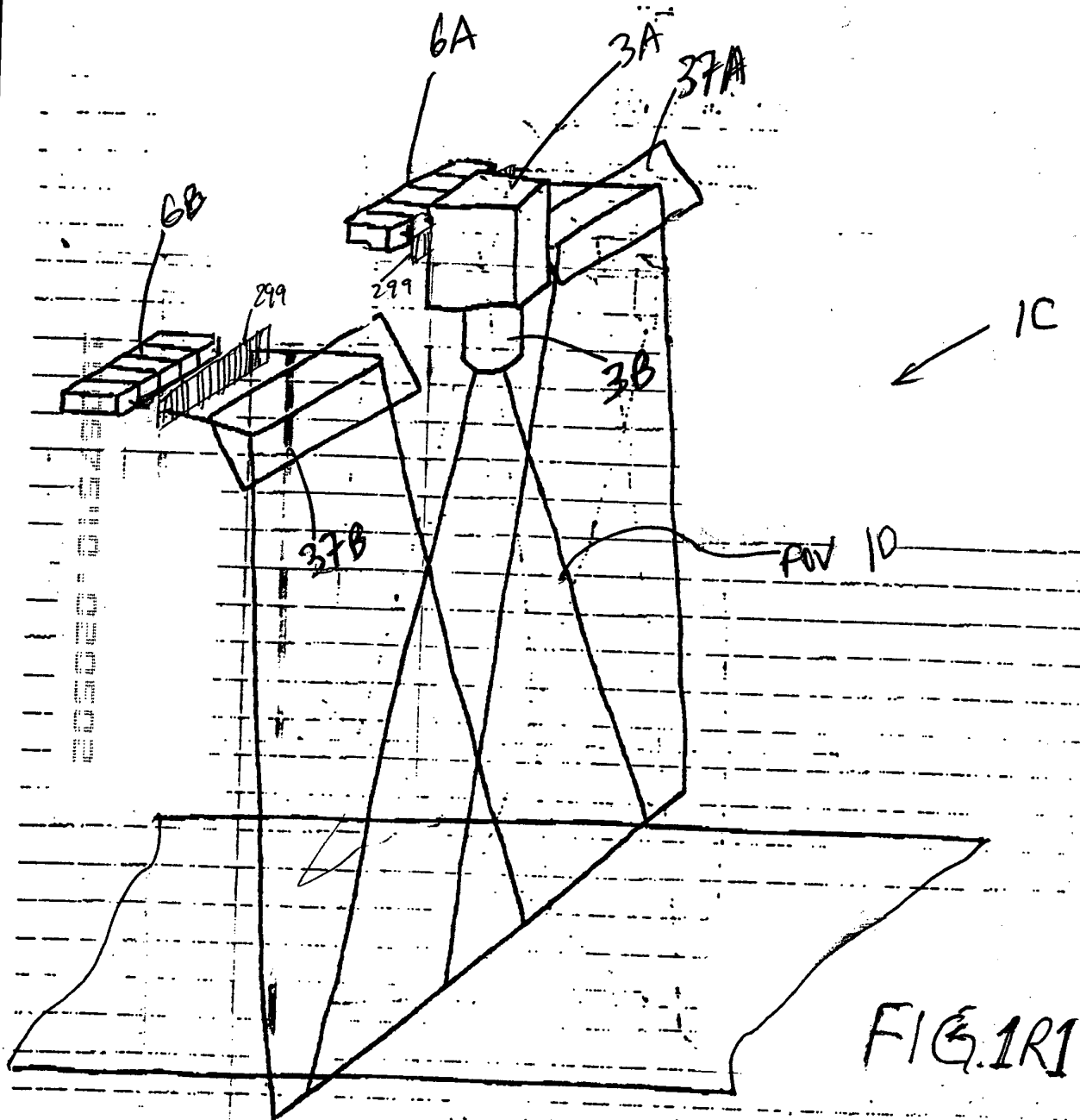


FIG. 102

98/332



99/332

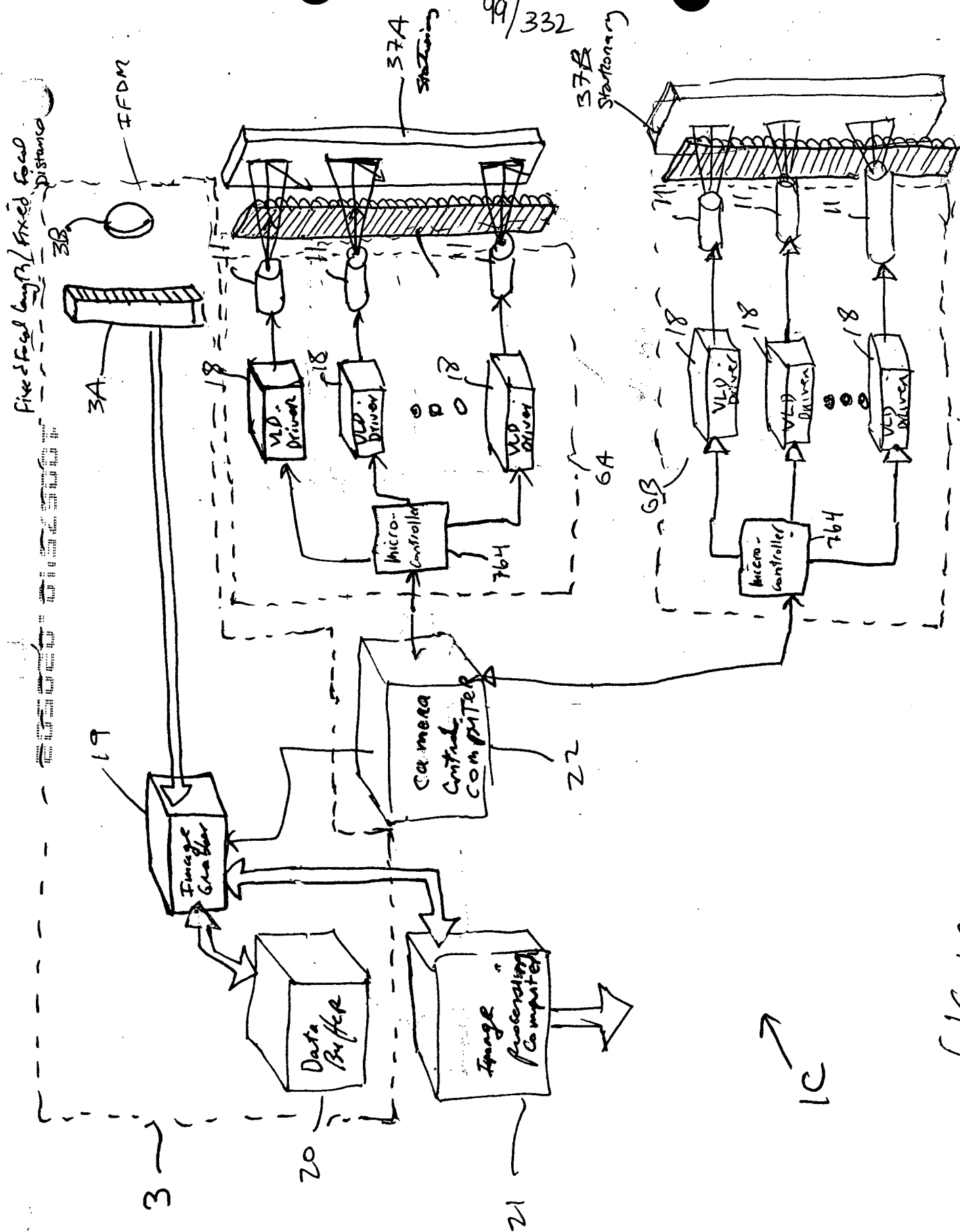


FIG. 1R2

100/332

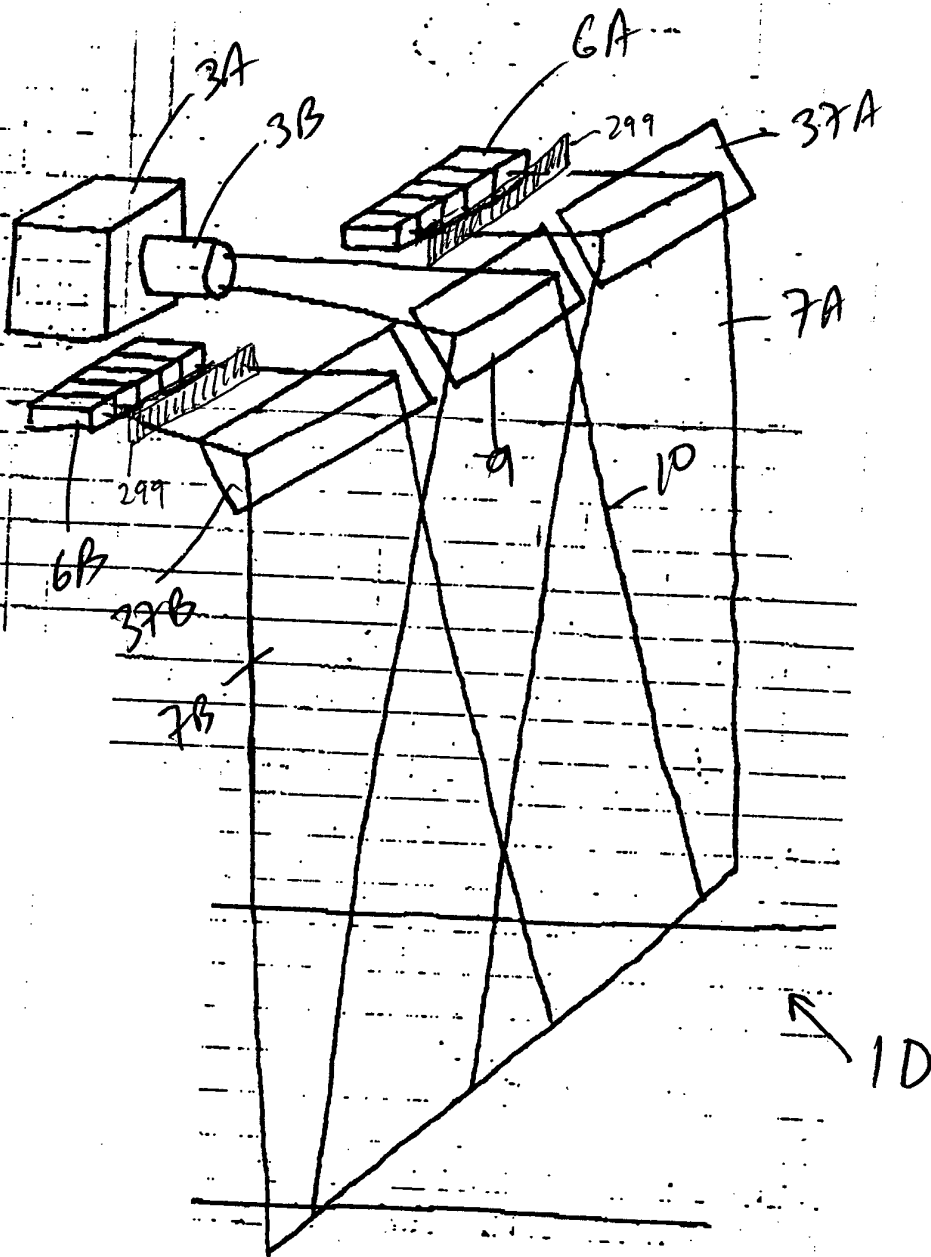


FIG. 1S1

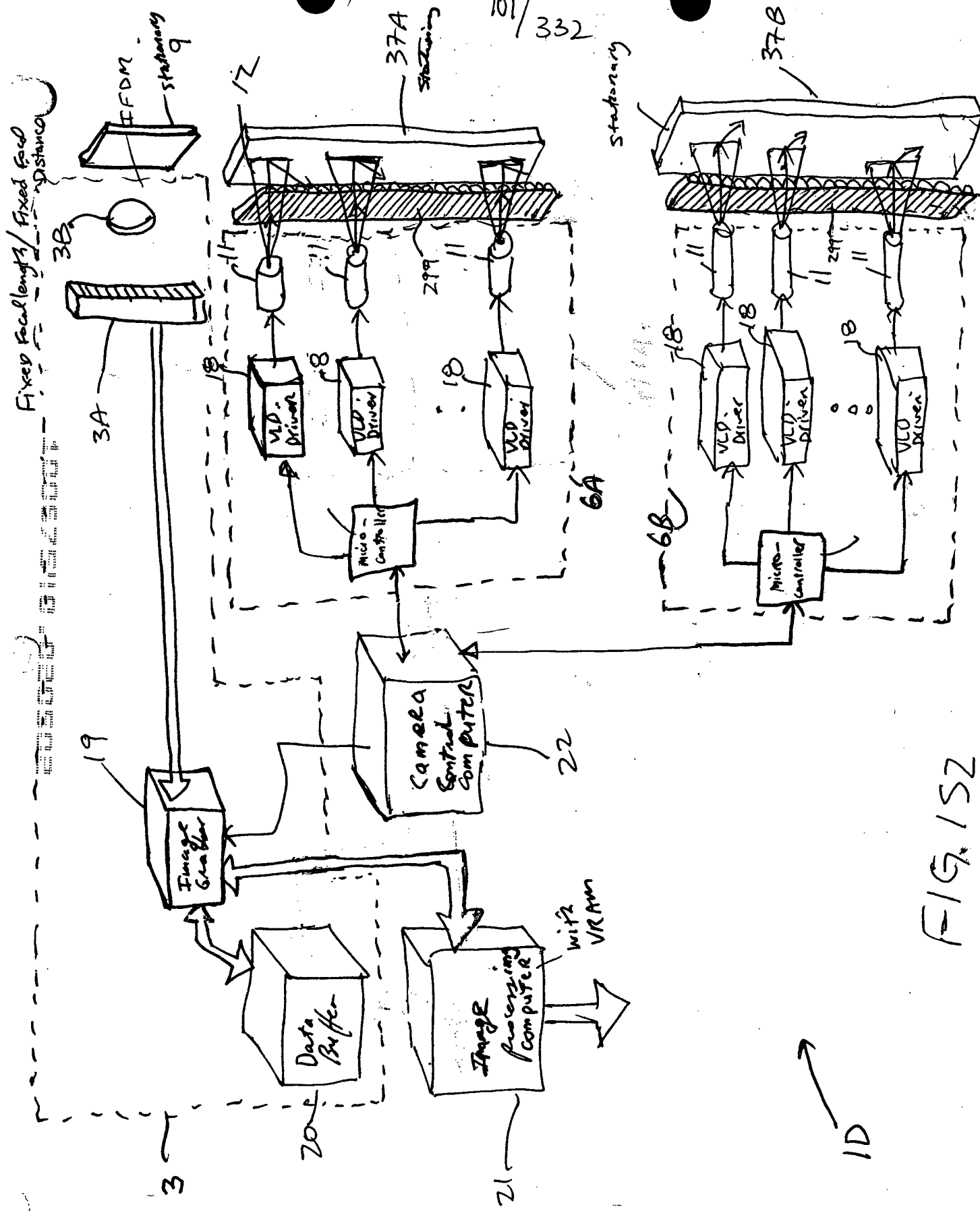


FIG. 152

Plane of Laser Illumination

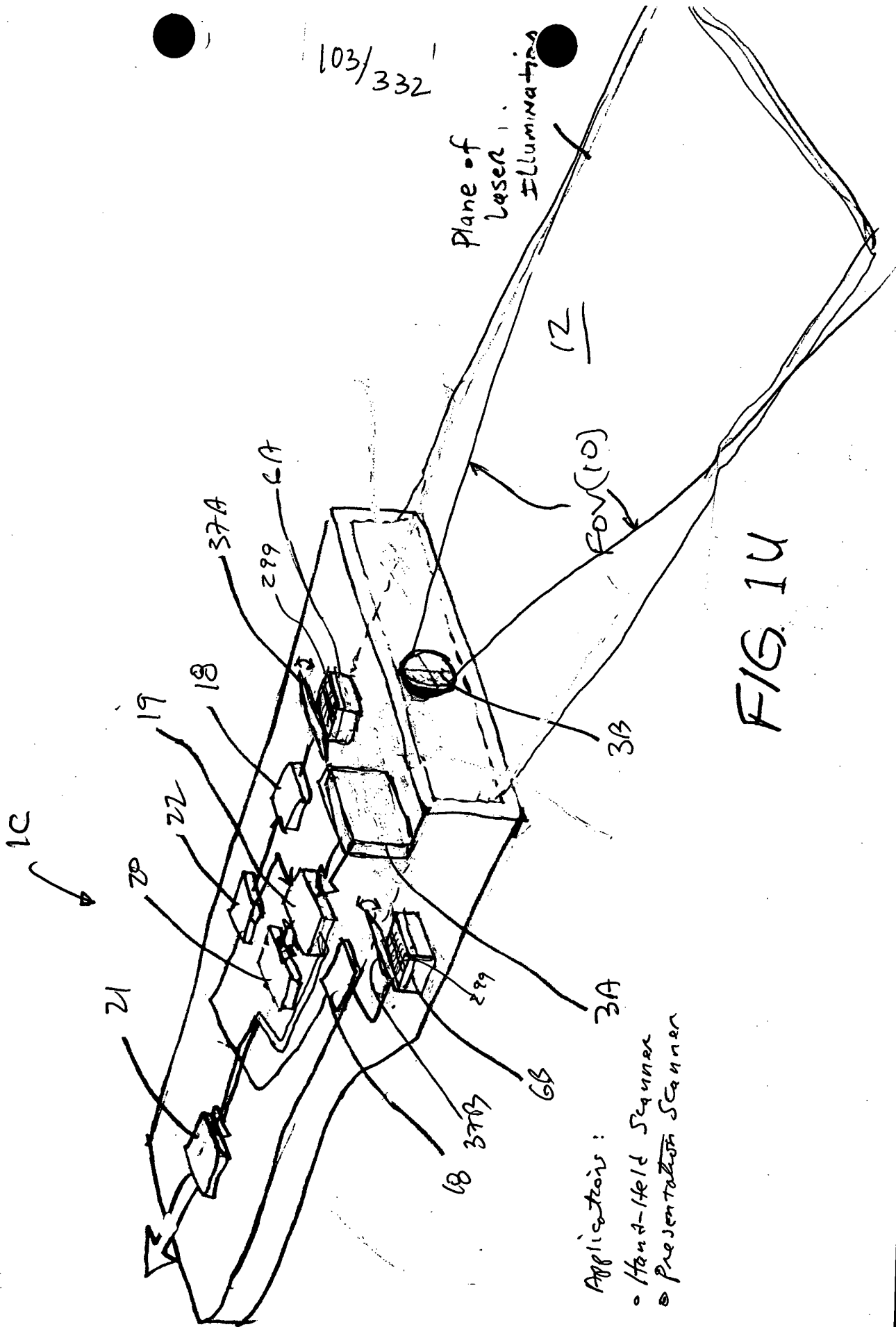


FIG 14

Applications:

- Hand-held Sequencer
- Presentation Scanner

104/332

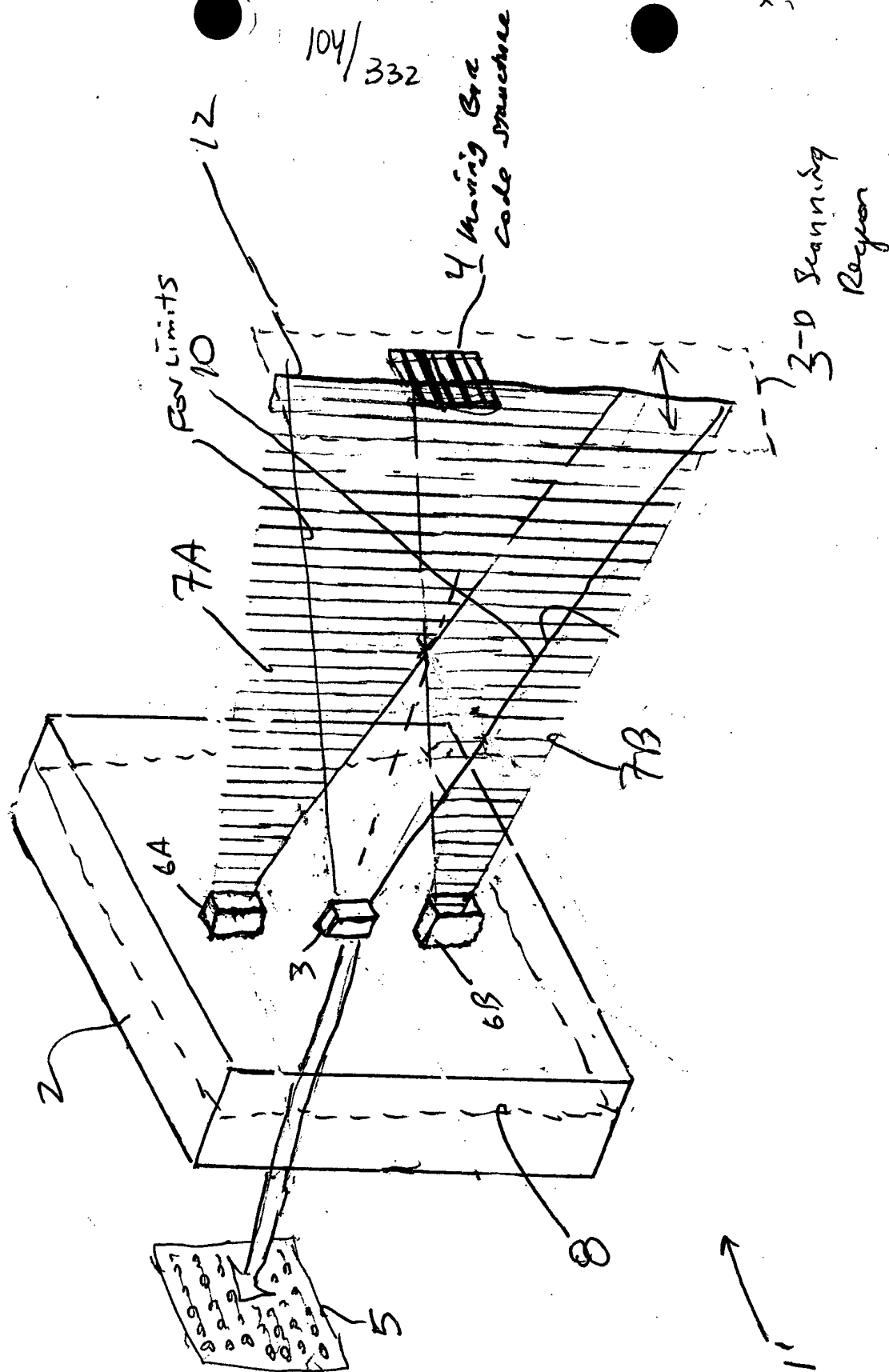


FIG. 1VI

105/332

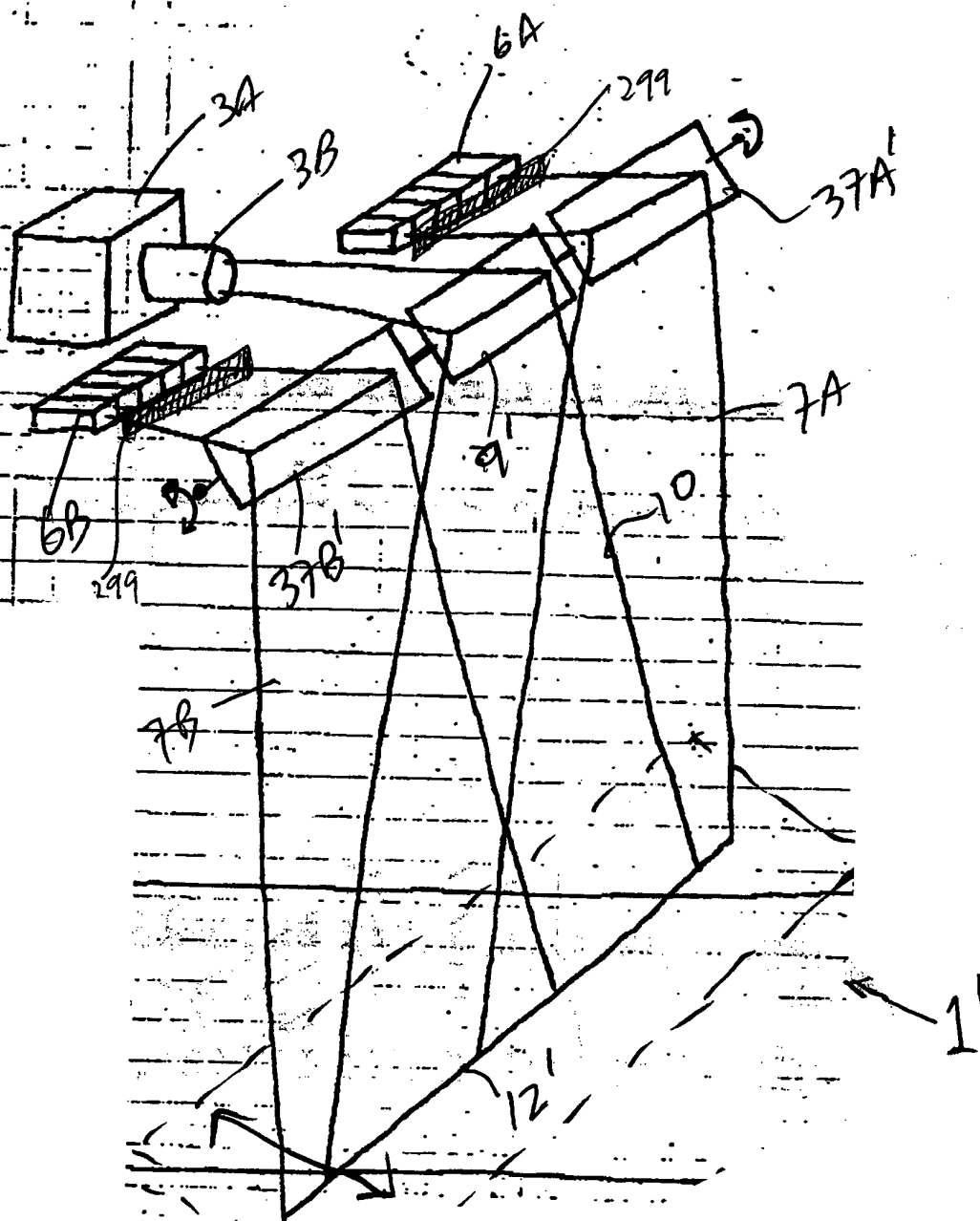


FIG. IV2

2-D
region
of
space

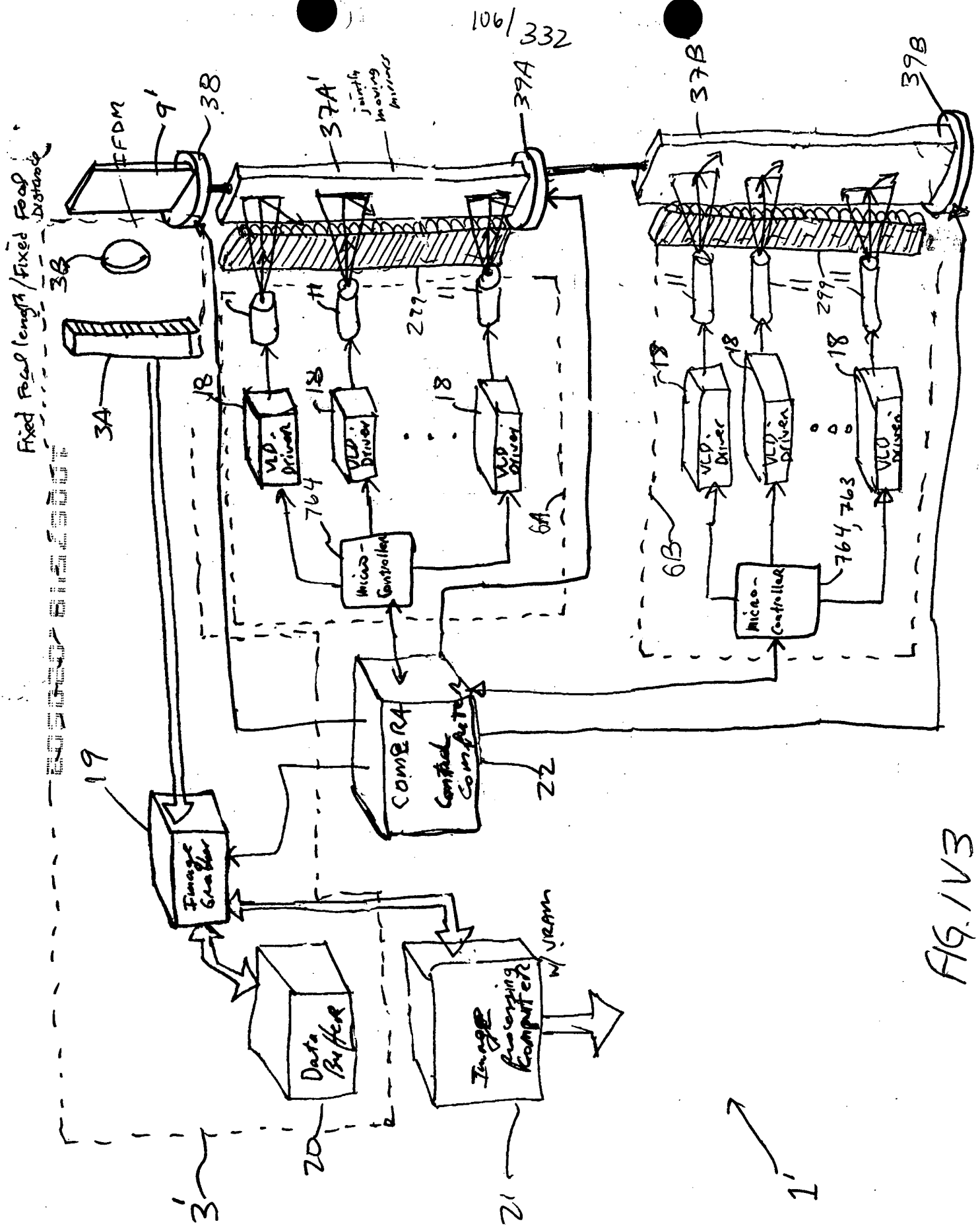


FIG. 1V3

- Hand-held scanner
- Presen to Tom Scanner

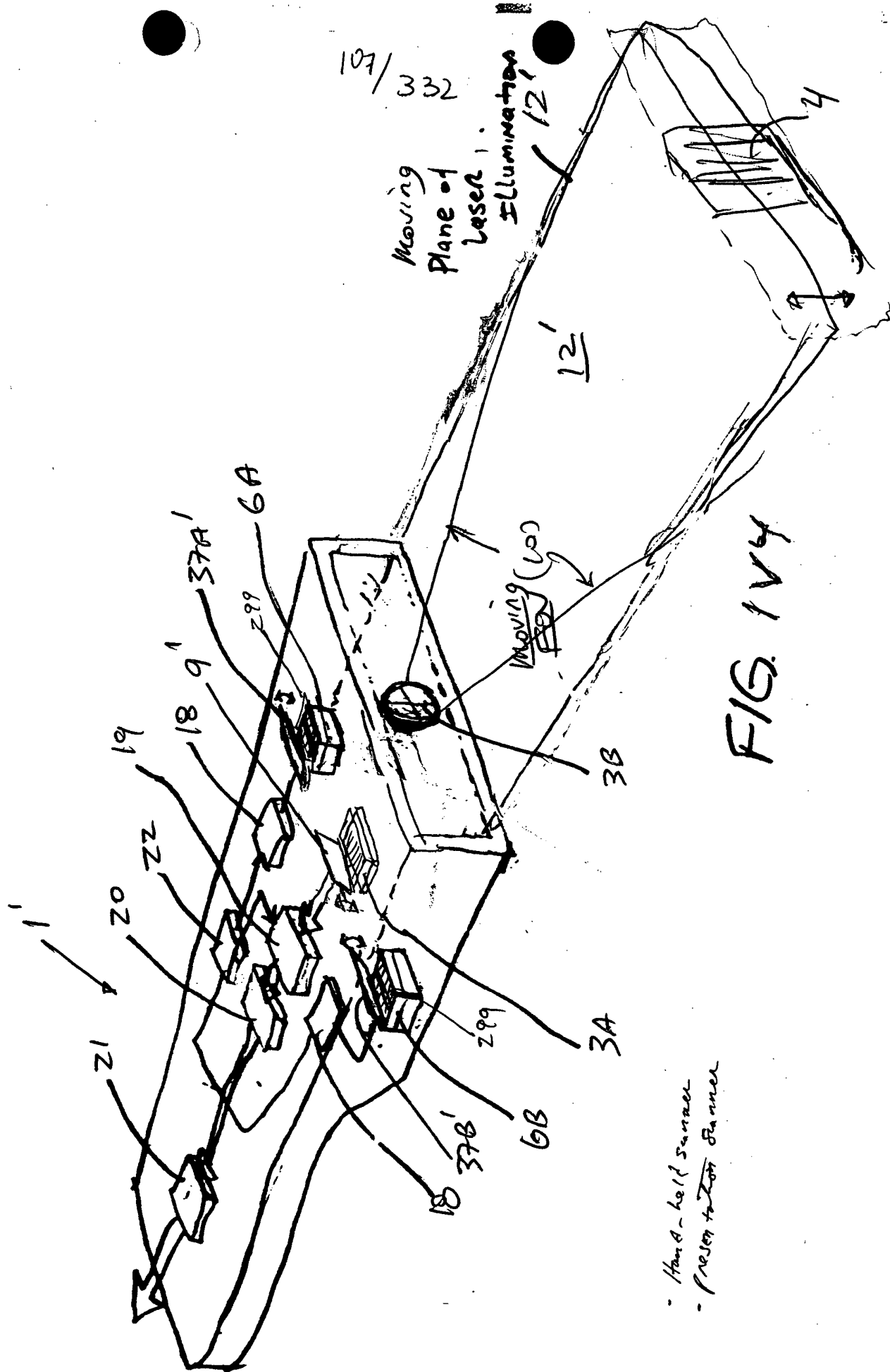


FIG. 184

[illegible]

109/332

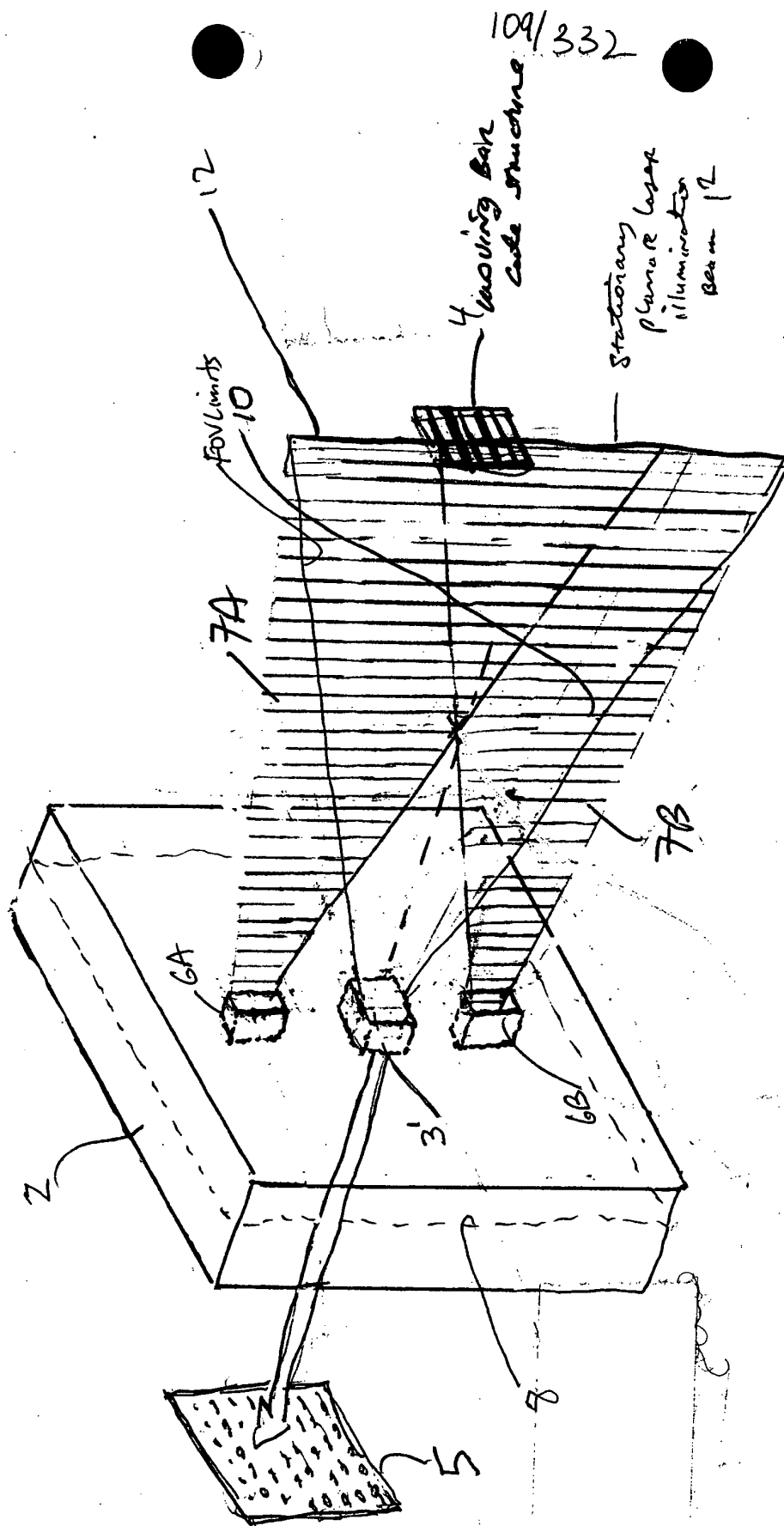


FIG. 2A

40

110/382

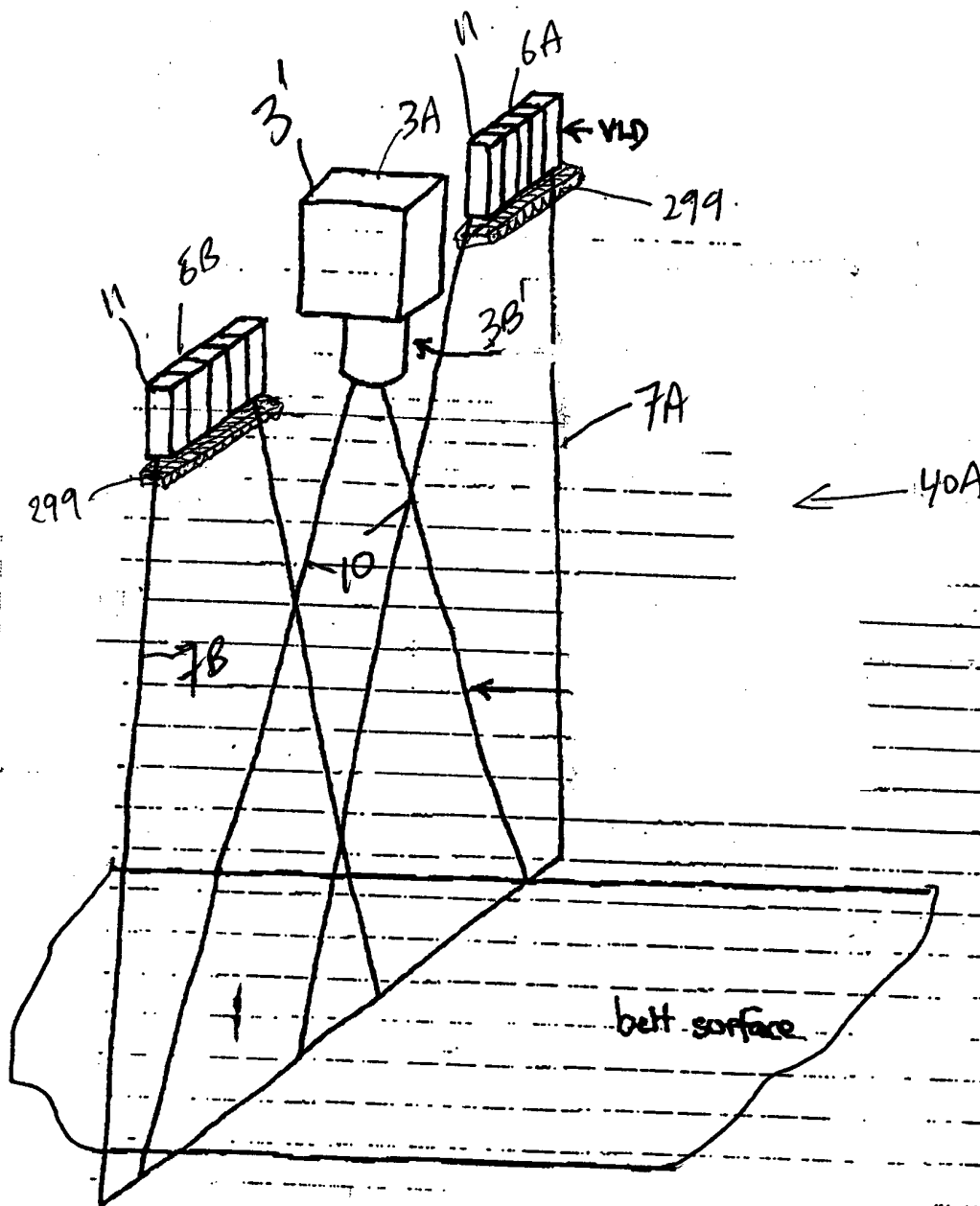


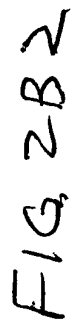
FIG. 2 B1

fixed

(1) focal length same as lens

(2) focal distance

Variable



112/332

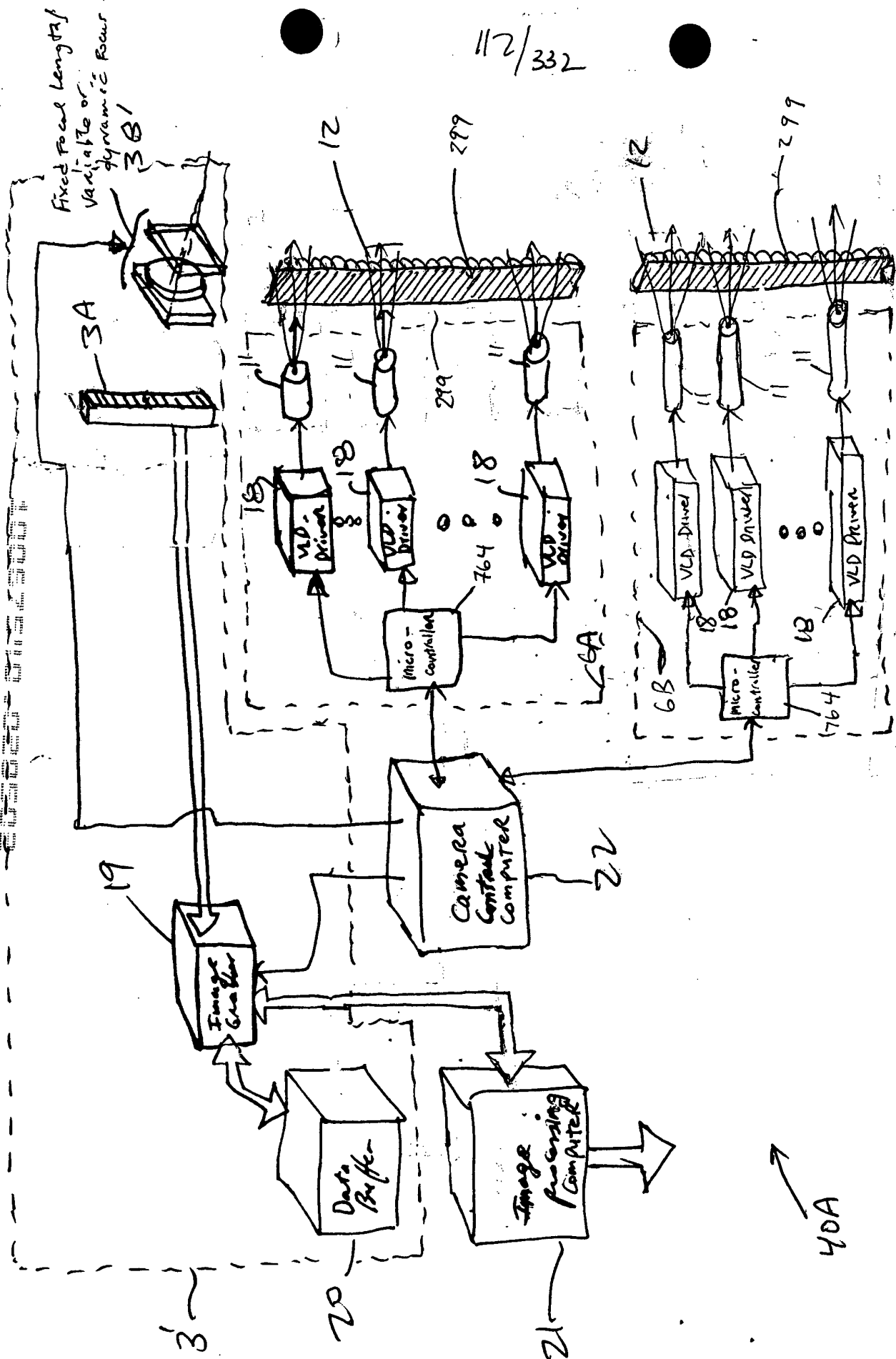


FIG. 2C1

FIG. 2C2

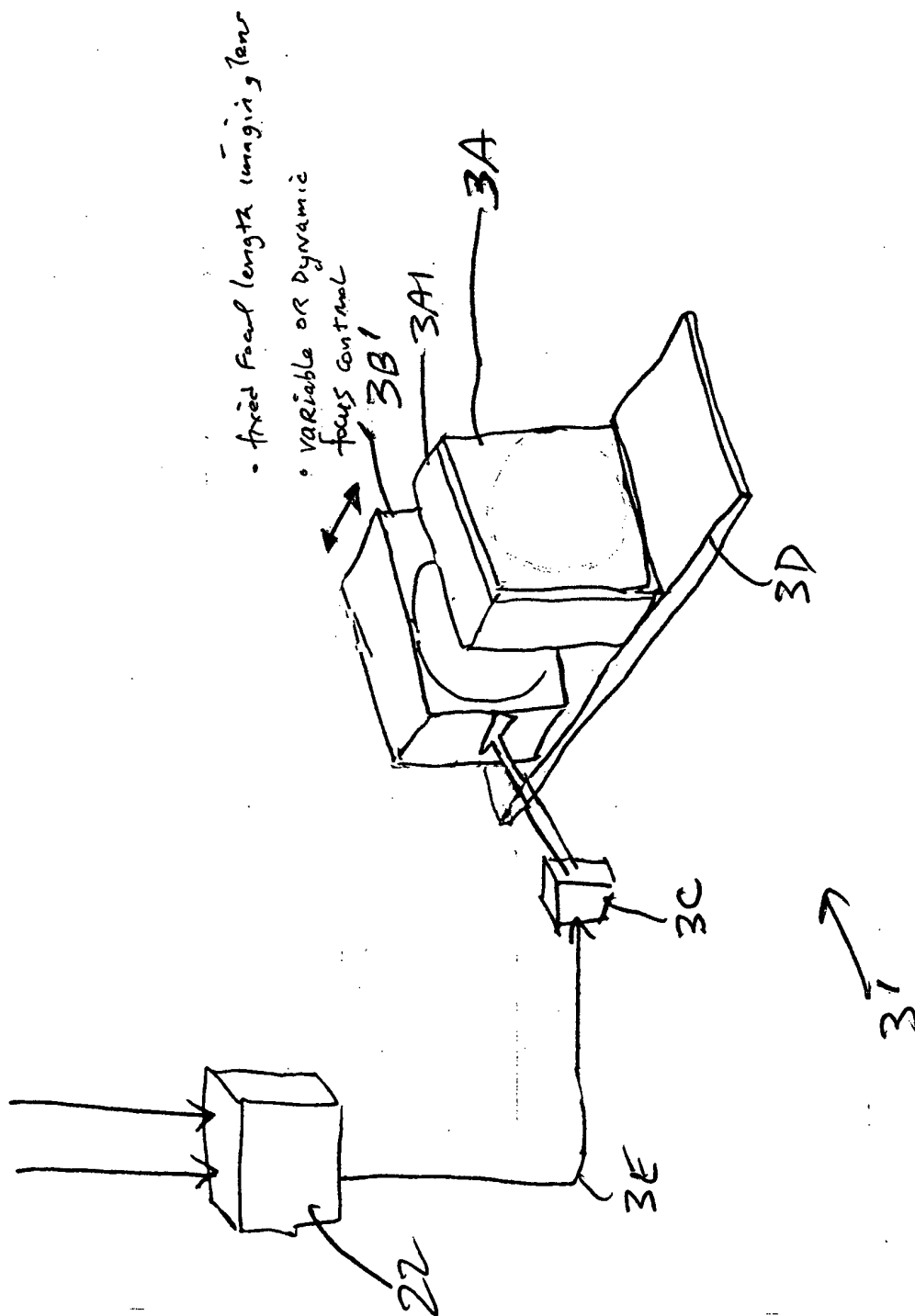


FIG. 2C2

114/332

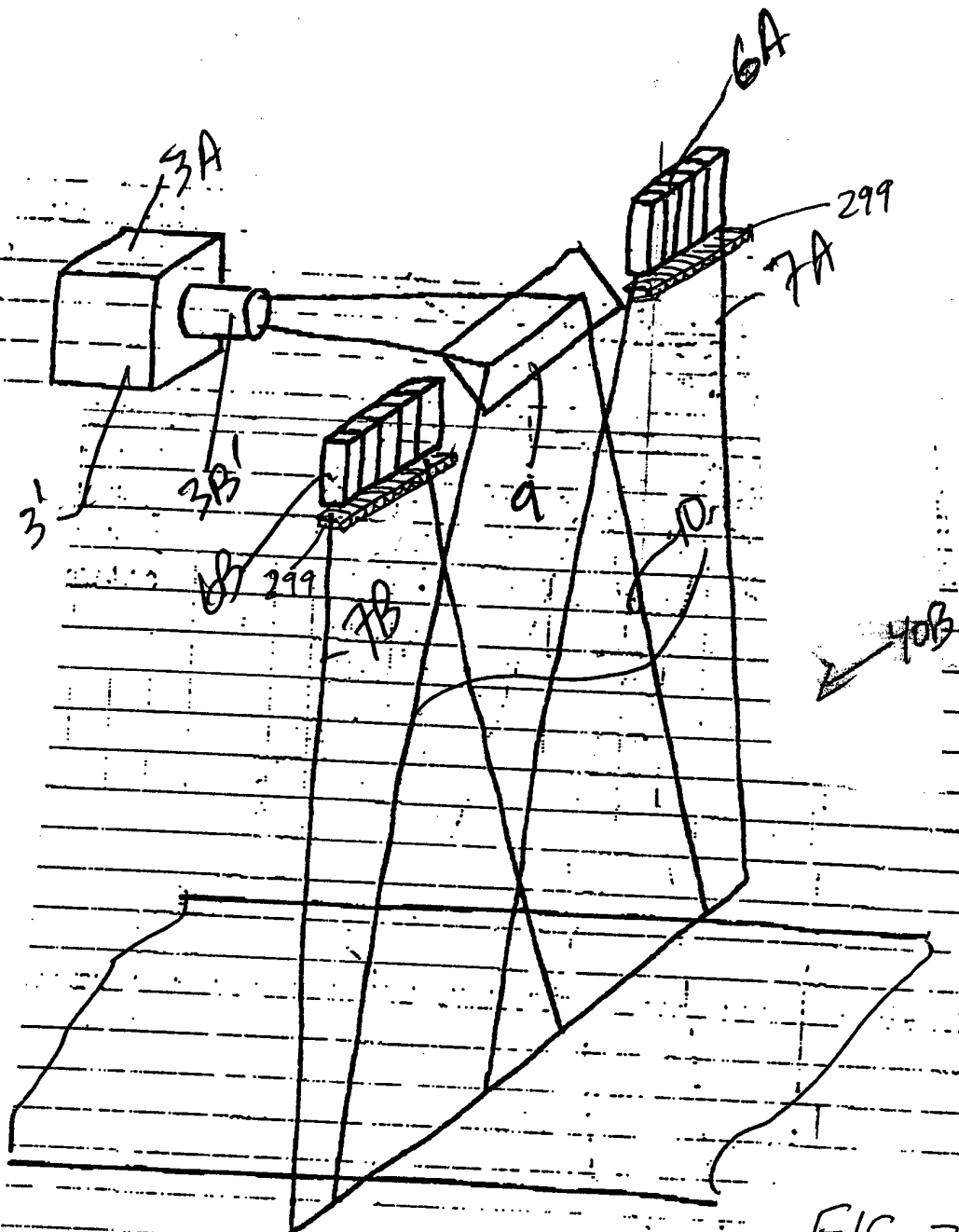


FIG. 2D1

115/332

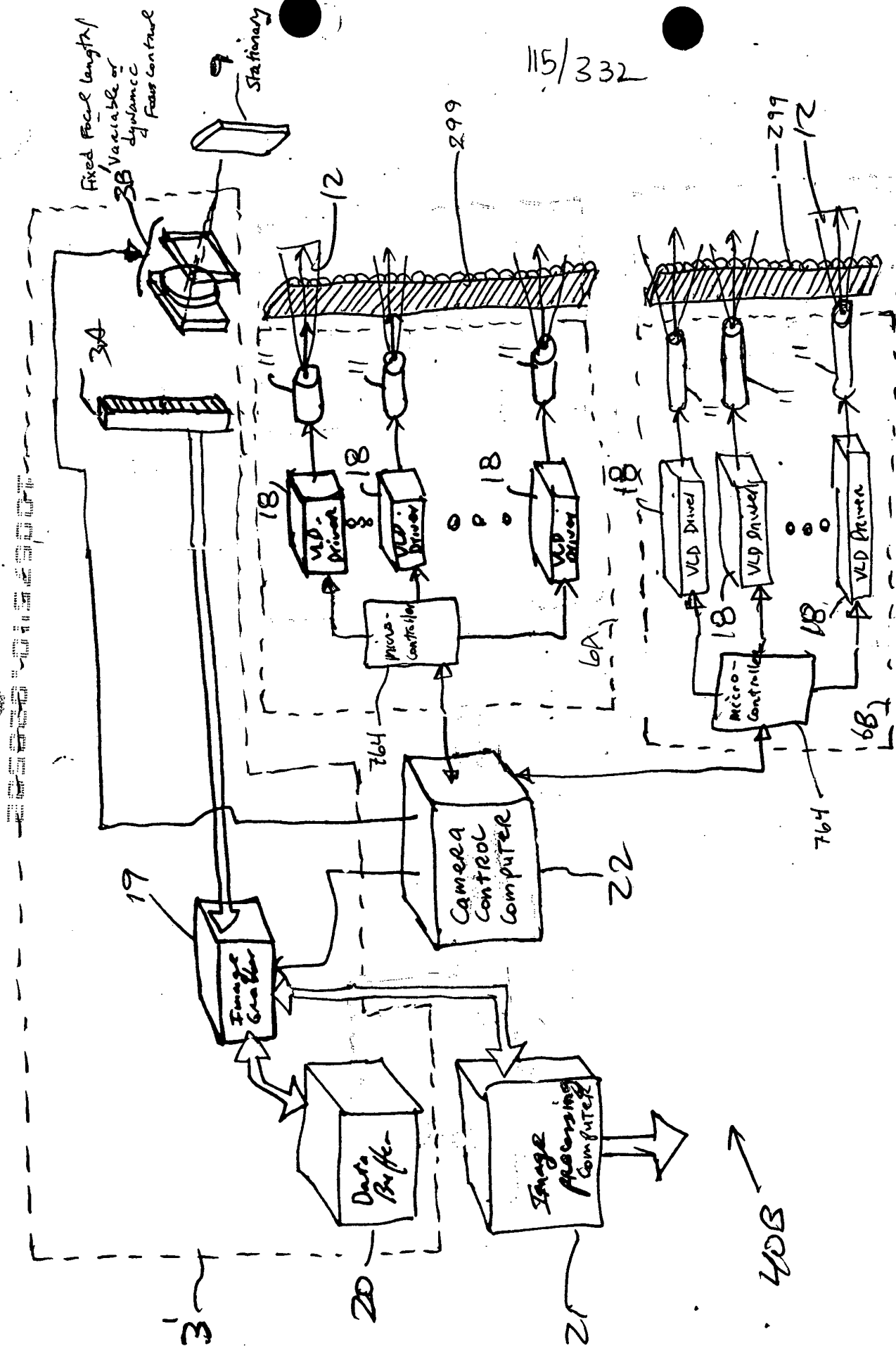


FIG. 2D2

(C)

20500 012500T

116/332

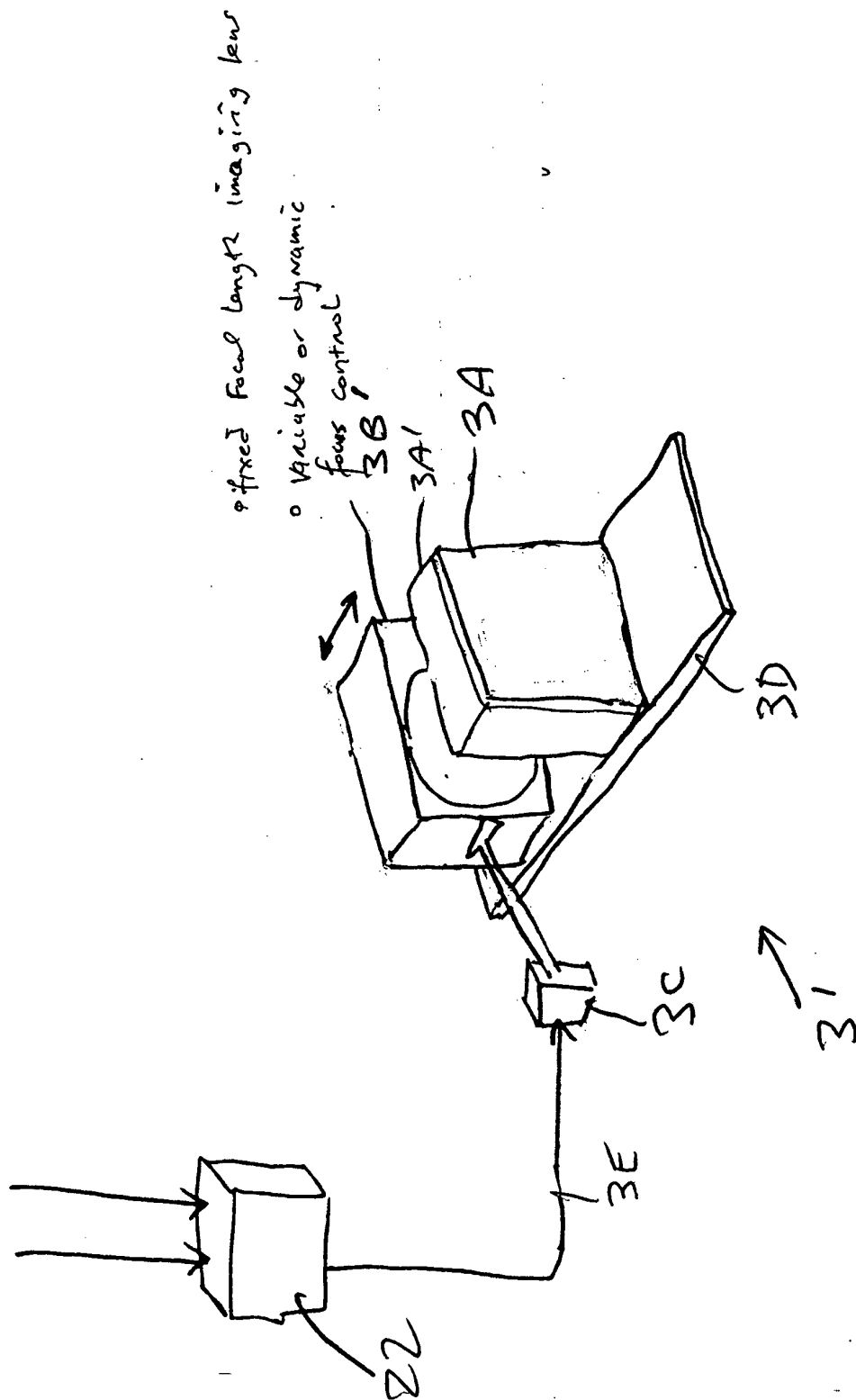
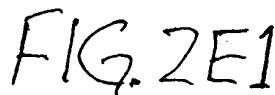


FIG. 2D3



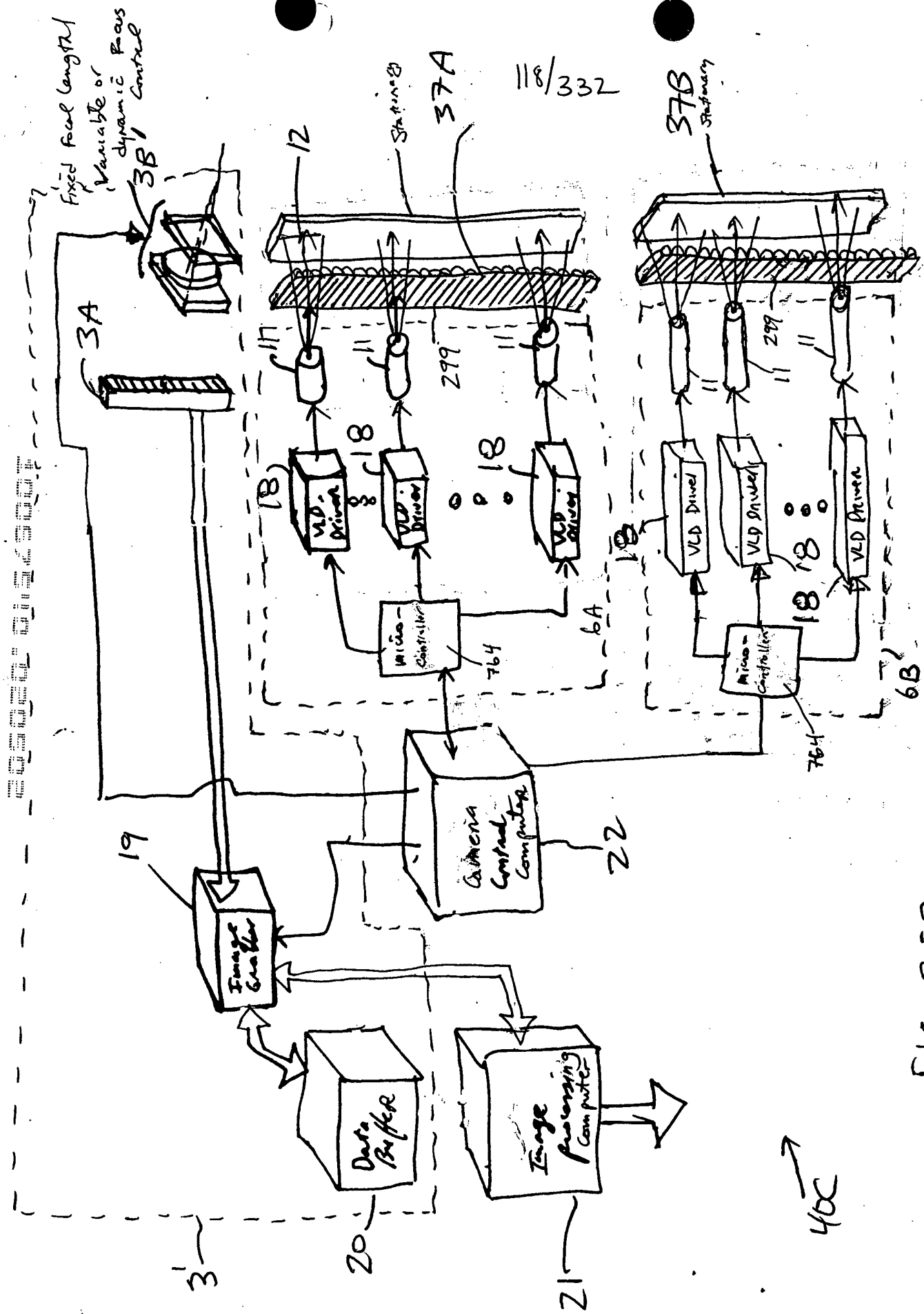


FIG. 2E2

- Fixed focal length imaging lens

- 0 variable or dynamic feedback control

38' — 341

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242
fig.

120/332

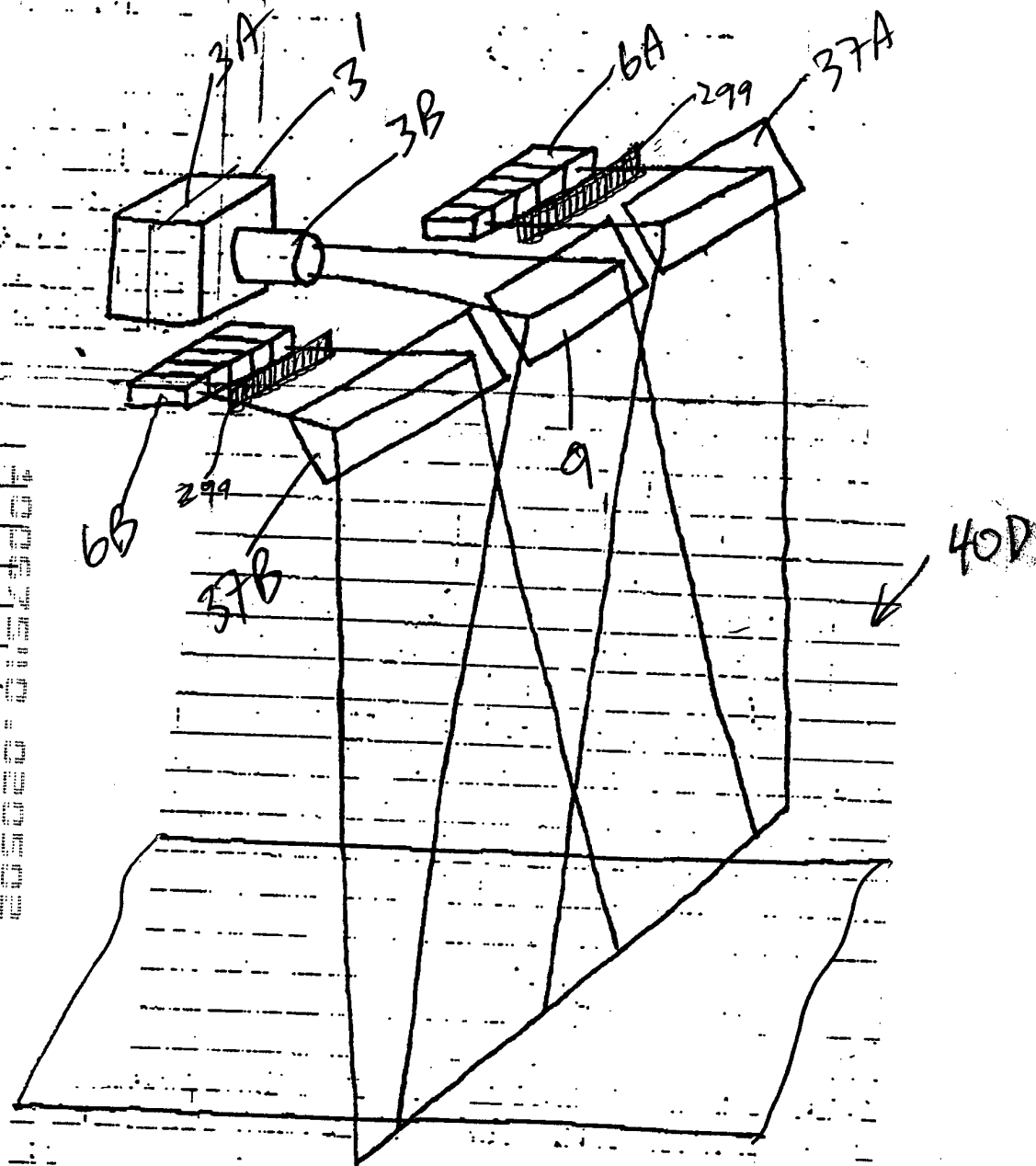


FIG. 2F1

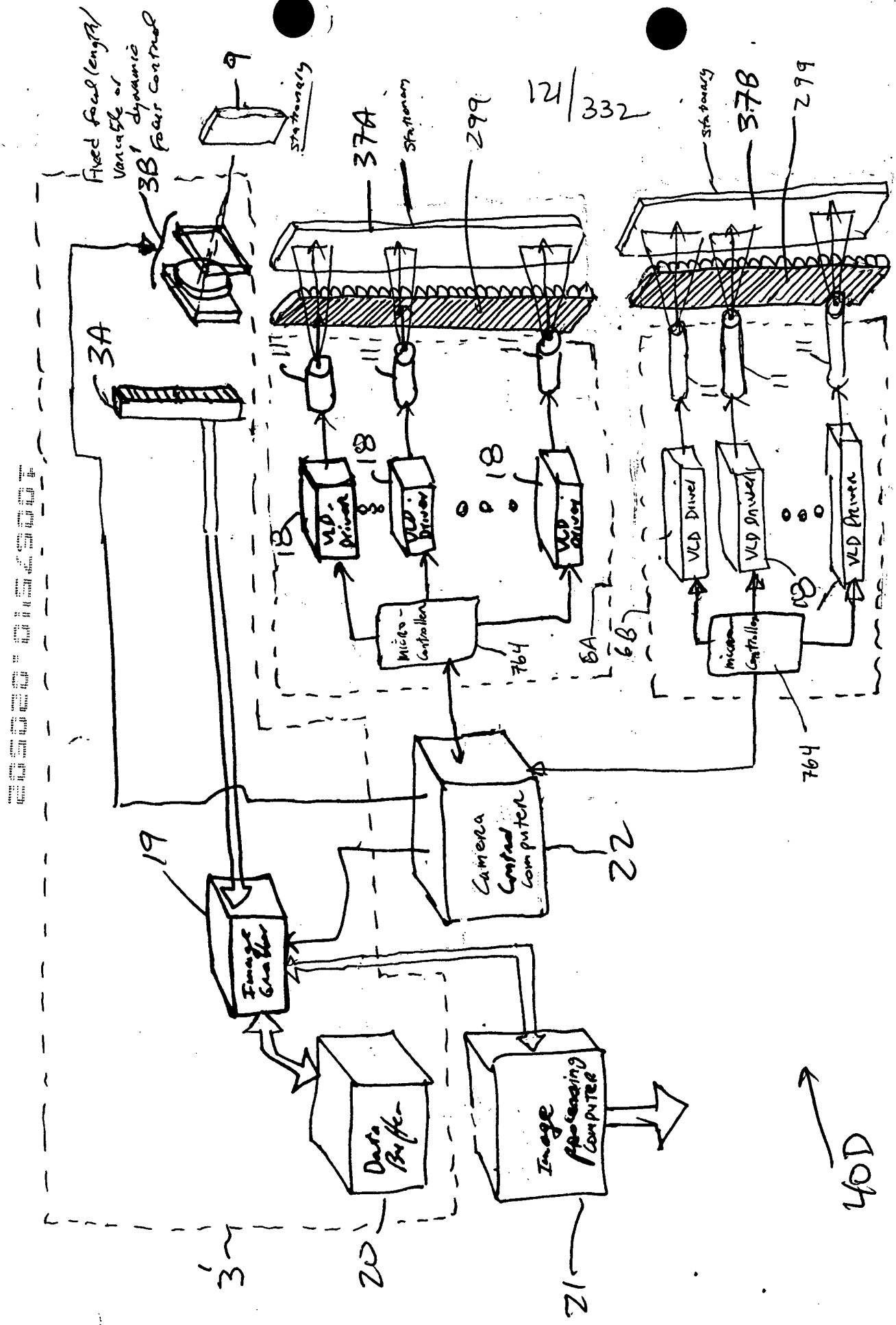


FIG 2F2

122/332

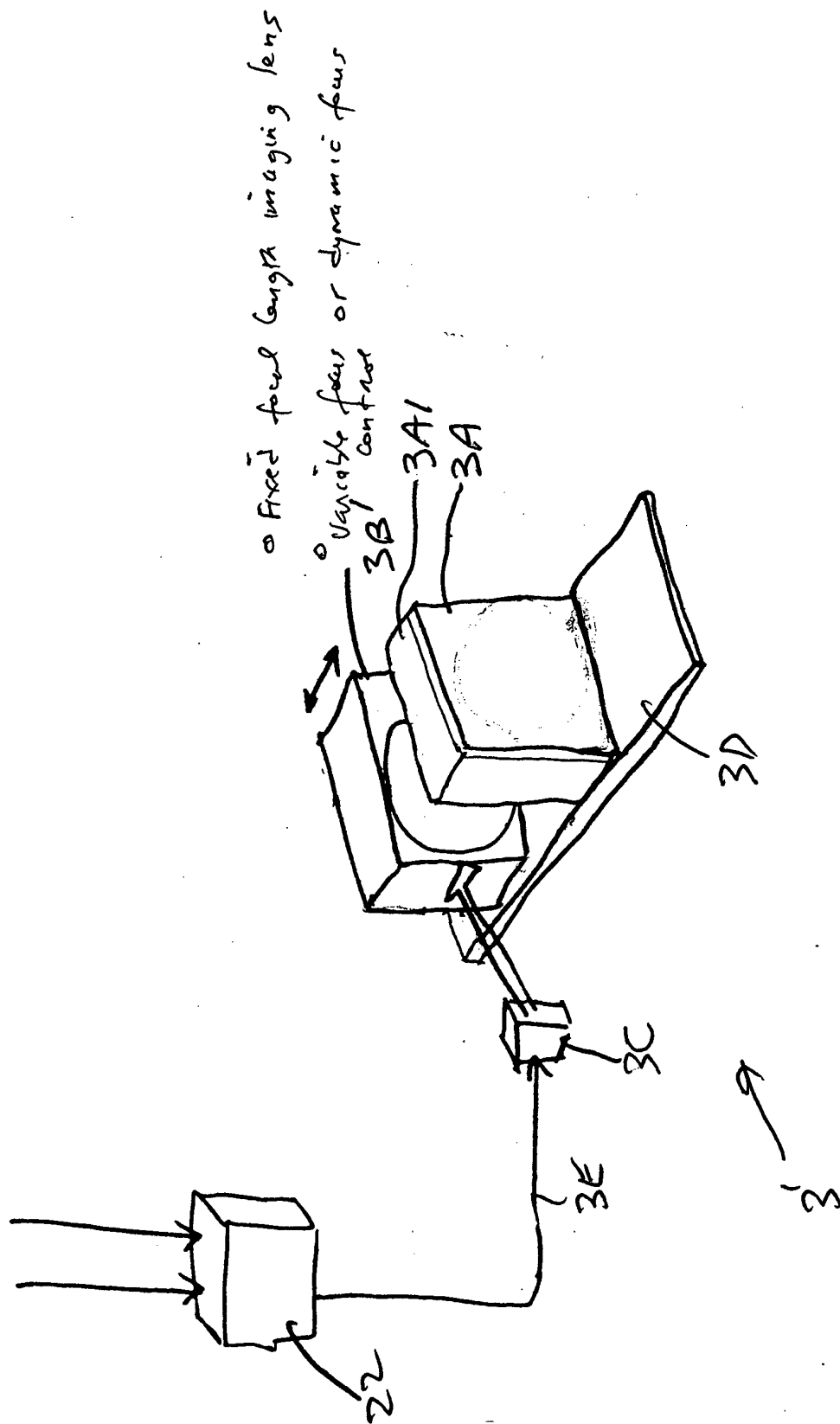


FIG. 2F3

123/332

Top Conveyor Scanner:

- fixed focal length imaging lens
- variable focal distance control

Side Conveyor Scanner:

- fixed focal length imaging lens
- dynamic focal distance control

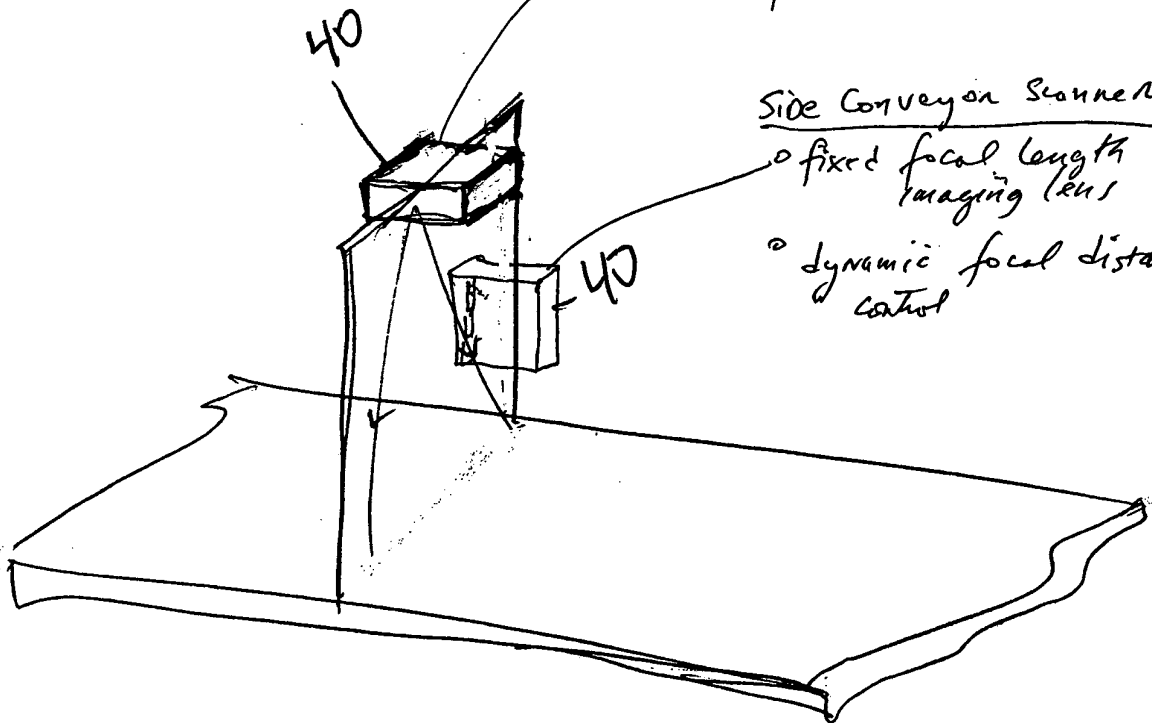


FIG. 2G

- Applications:
- thank letter
- presentation letter

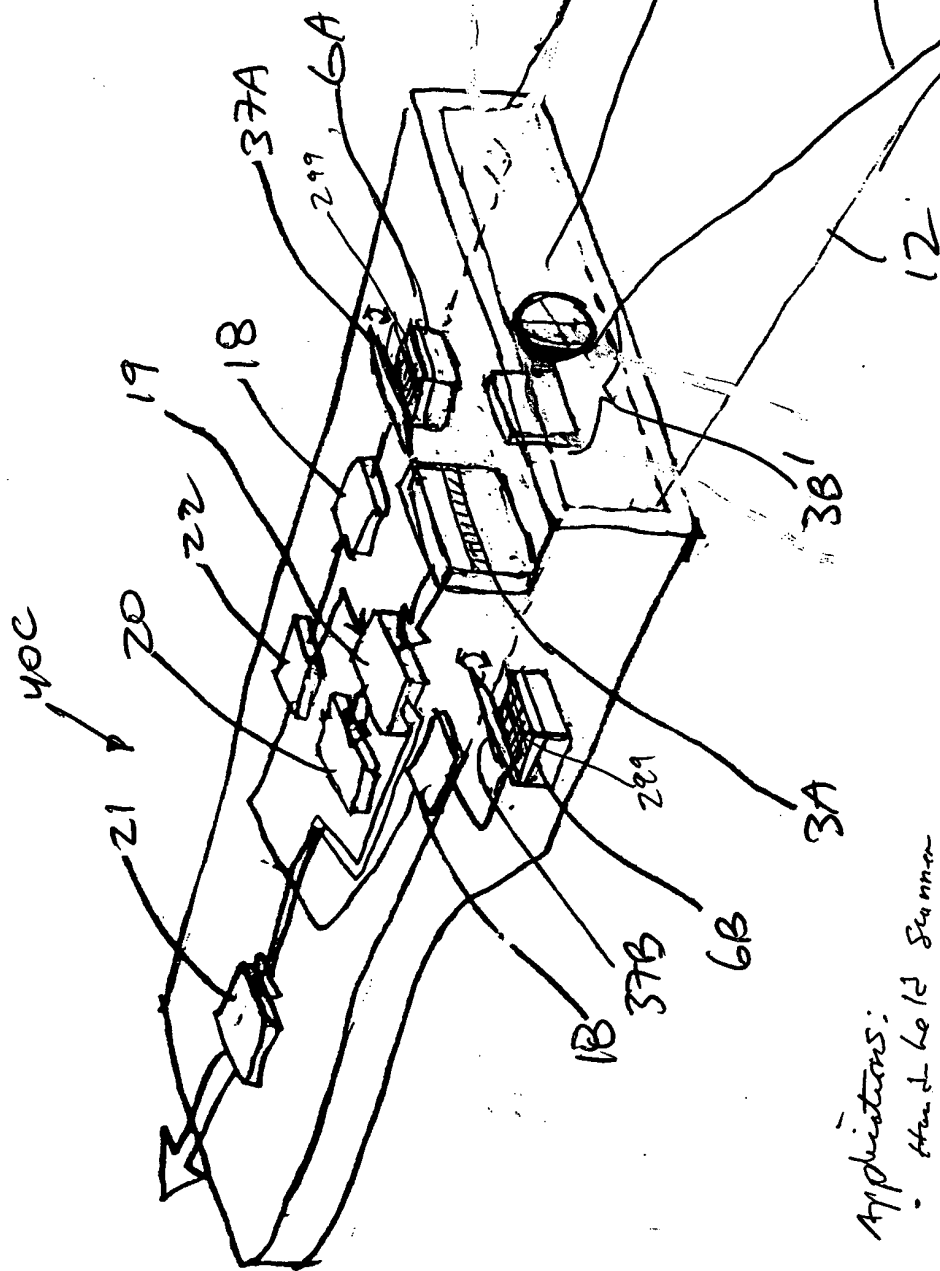
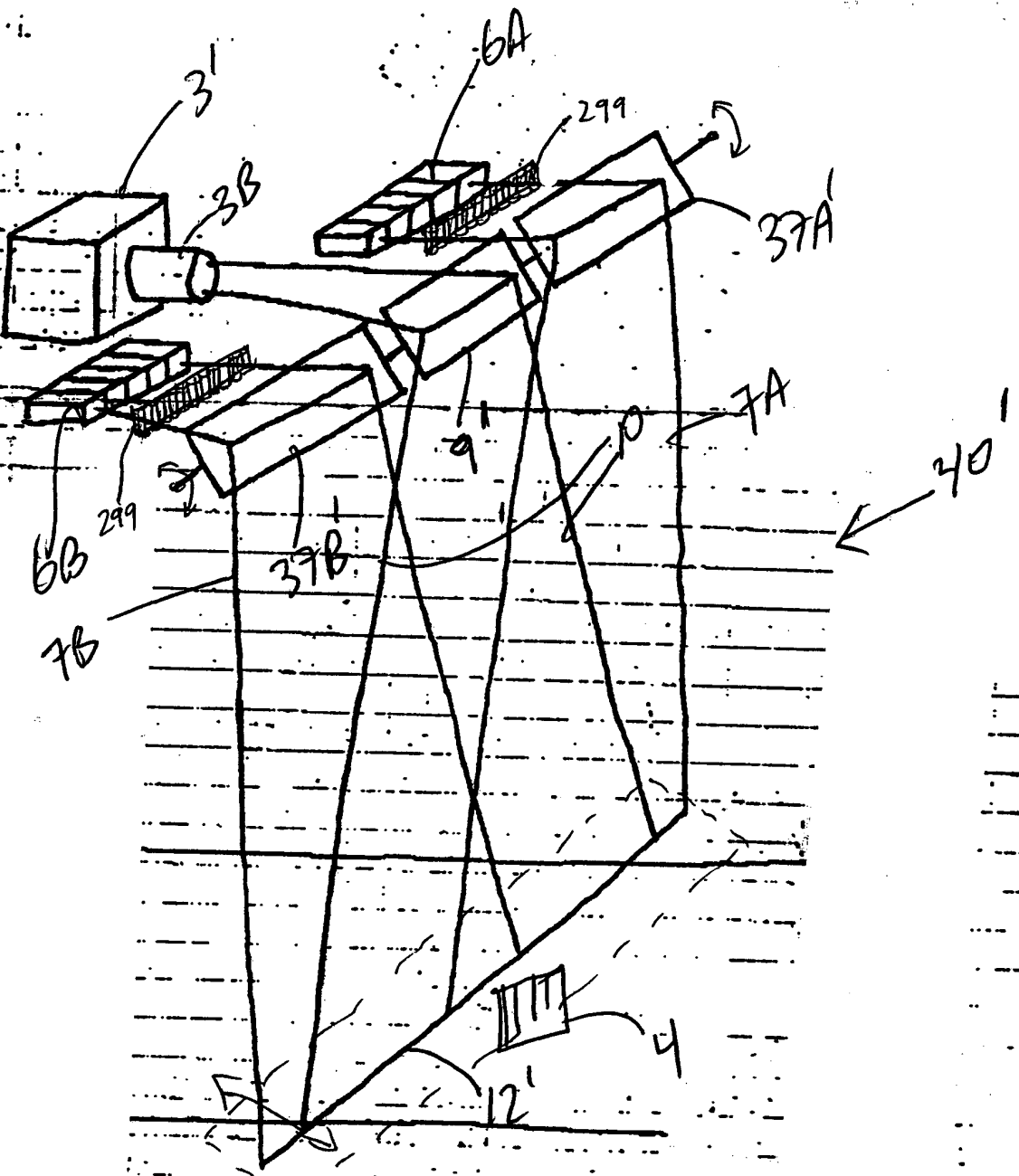


FIG. 24

124/332
Composite
Plane of
Laser
Illumination

126/332



3-D
Scanning
Region

FIG 2I2

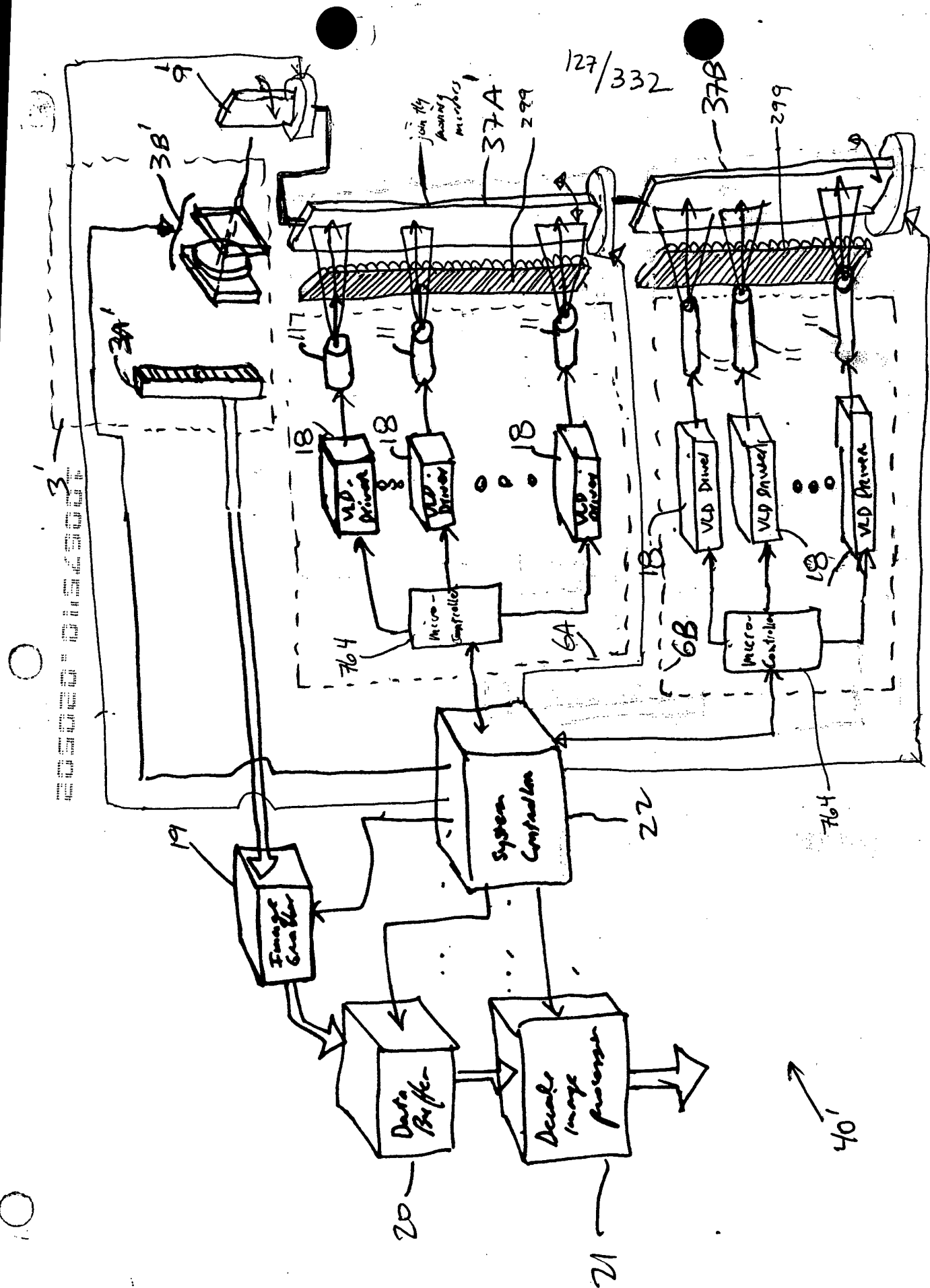


FIG. 2I3

128/332

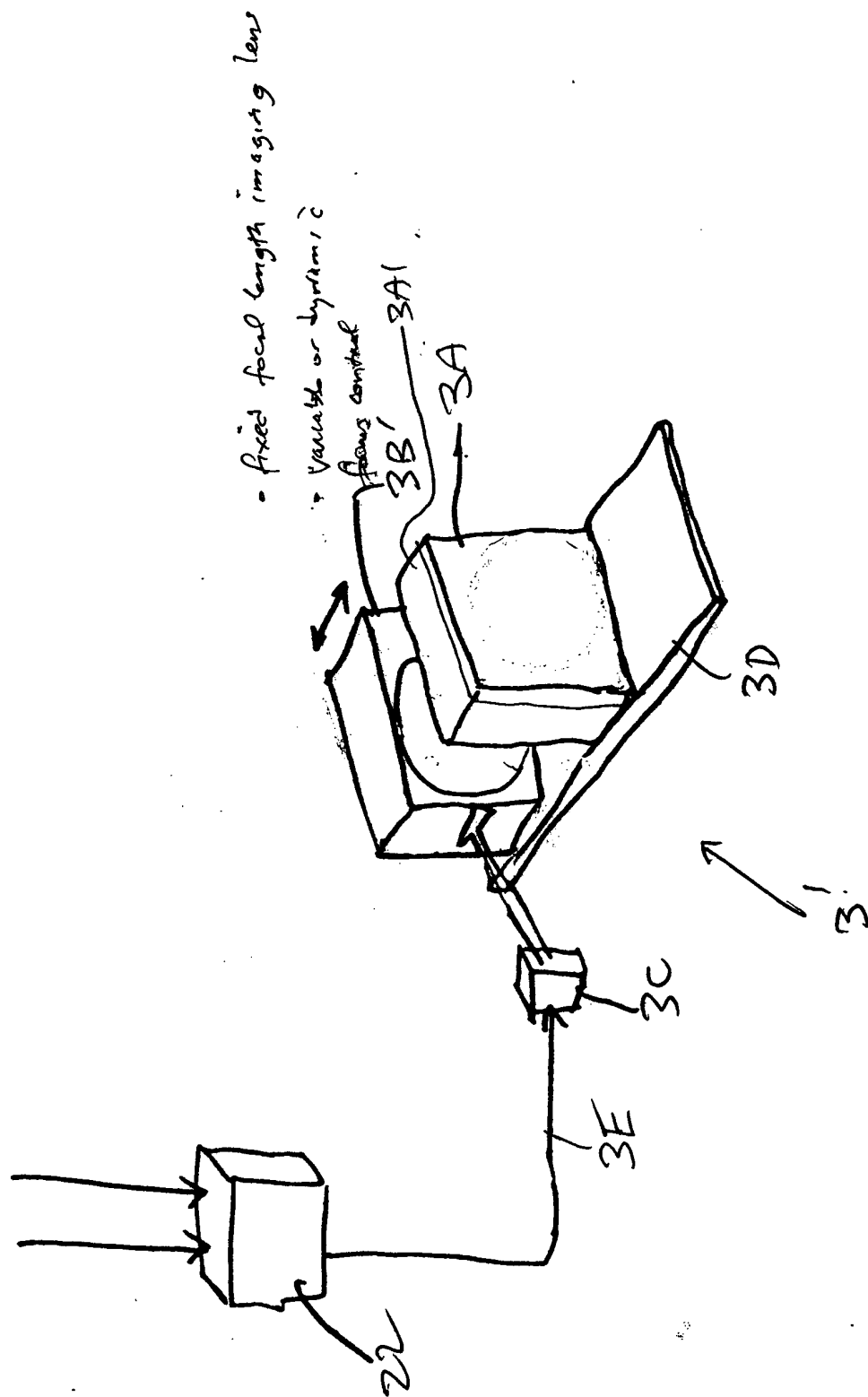


FIG. 2I4



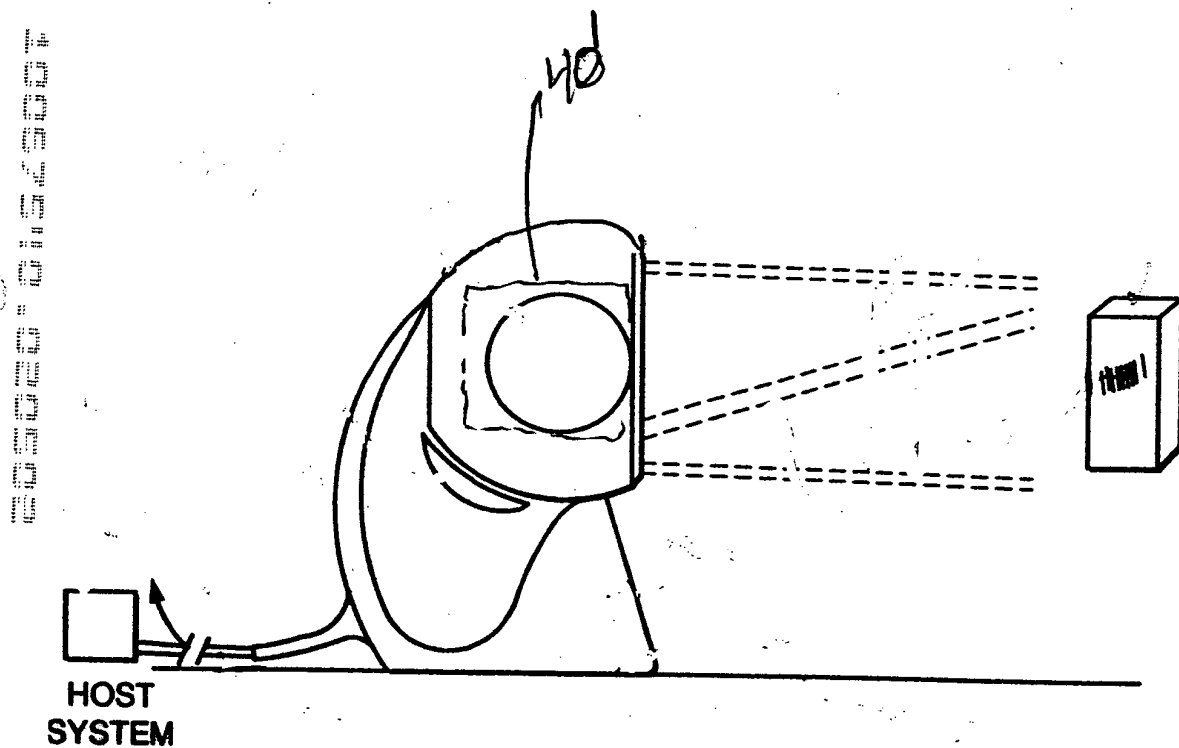


FIG. 2I6

131/332

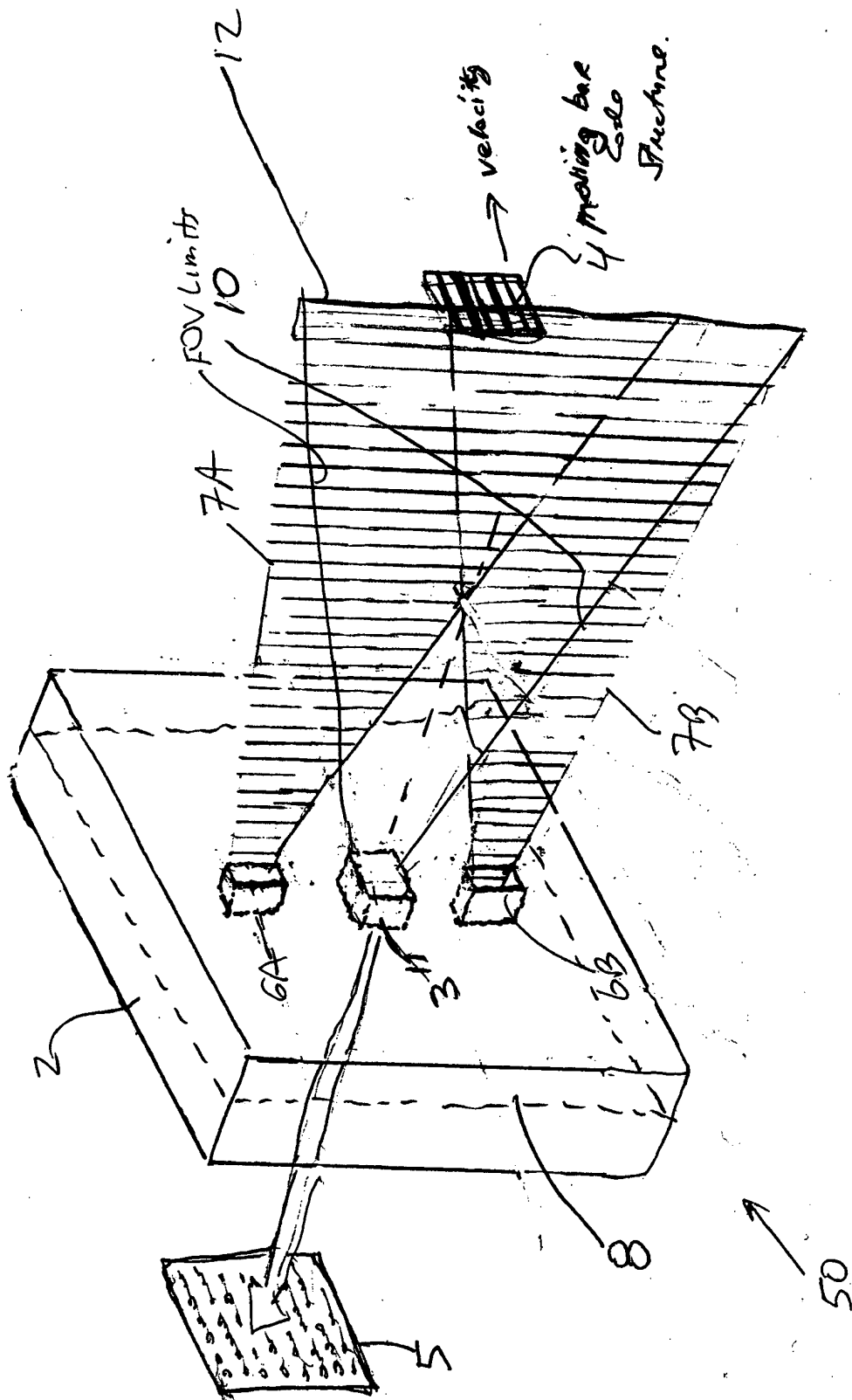


FIG 3A

132/332

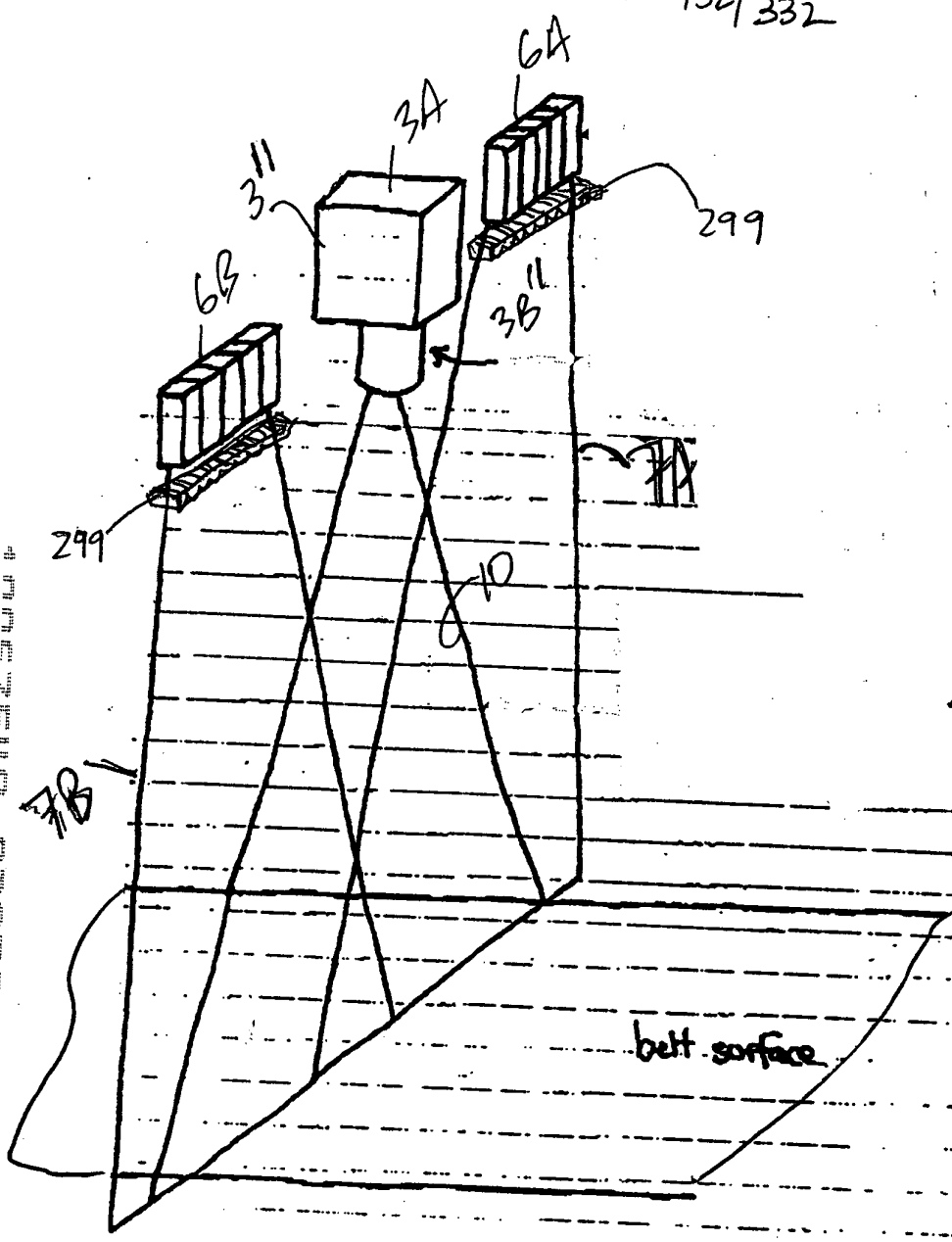


FIG. 3B1

FIG. 3B2

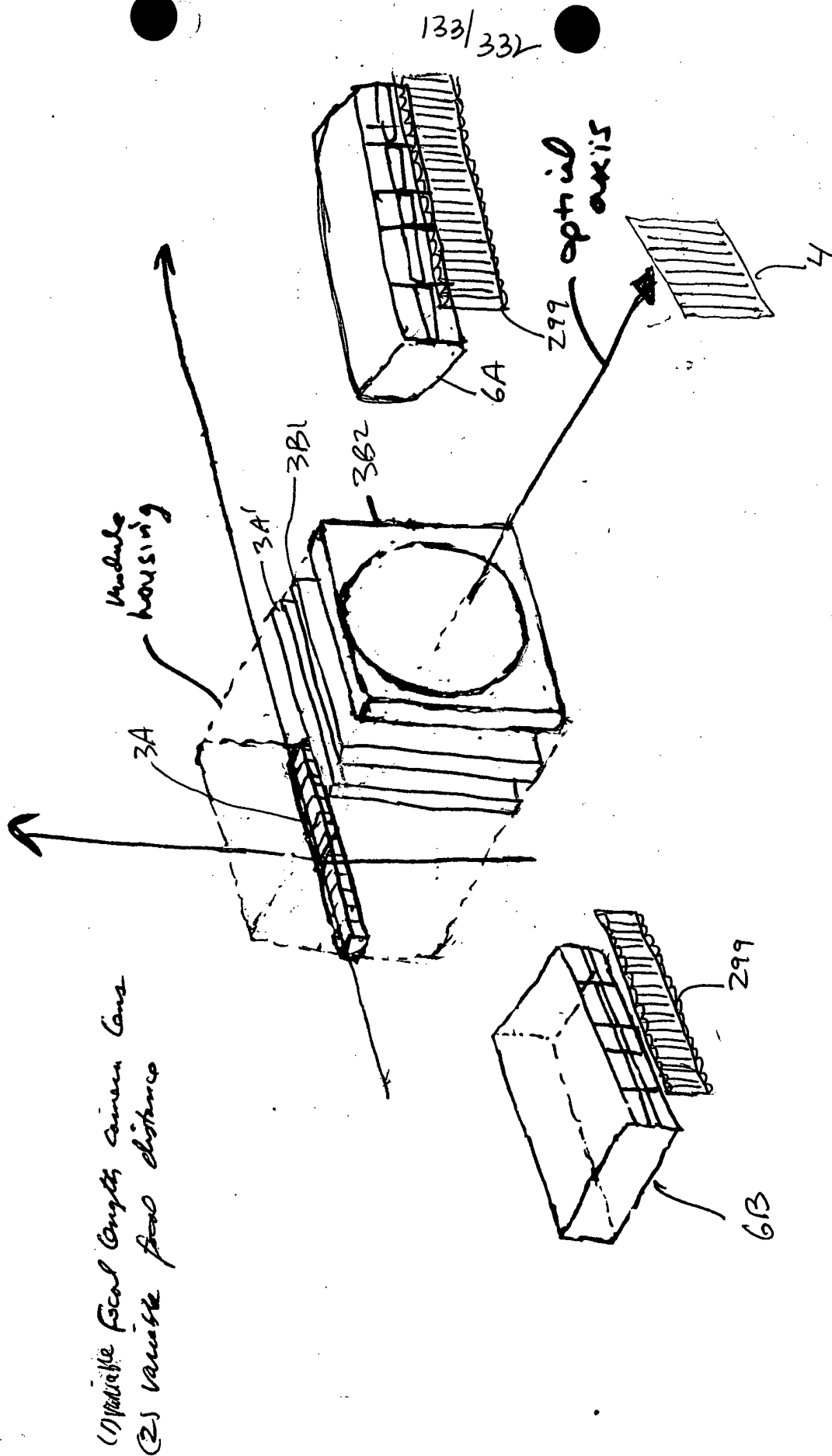
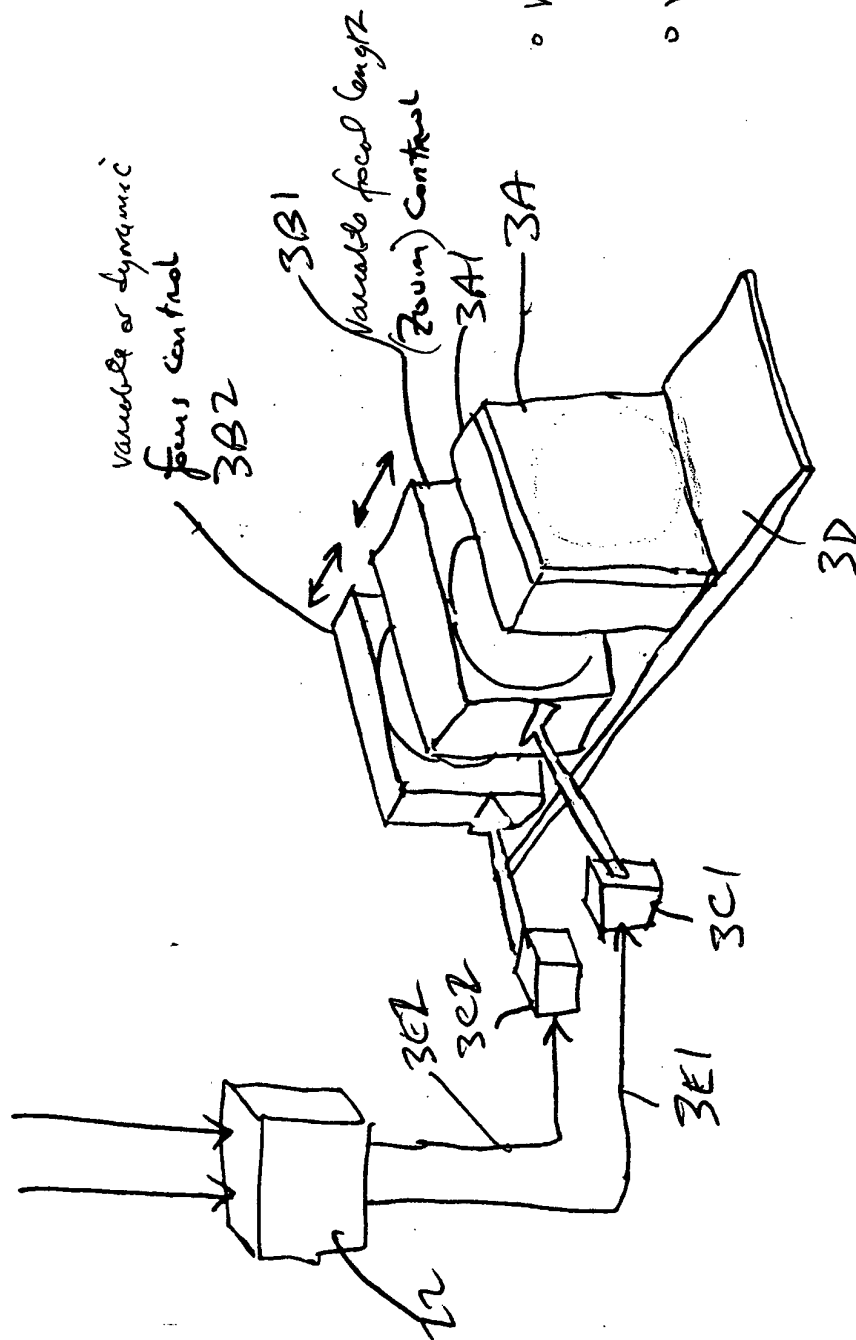


FIG. 3B2



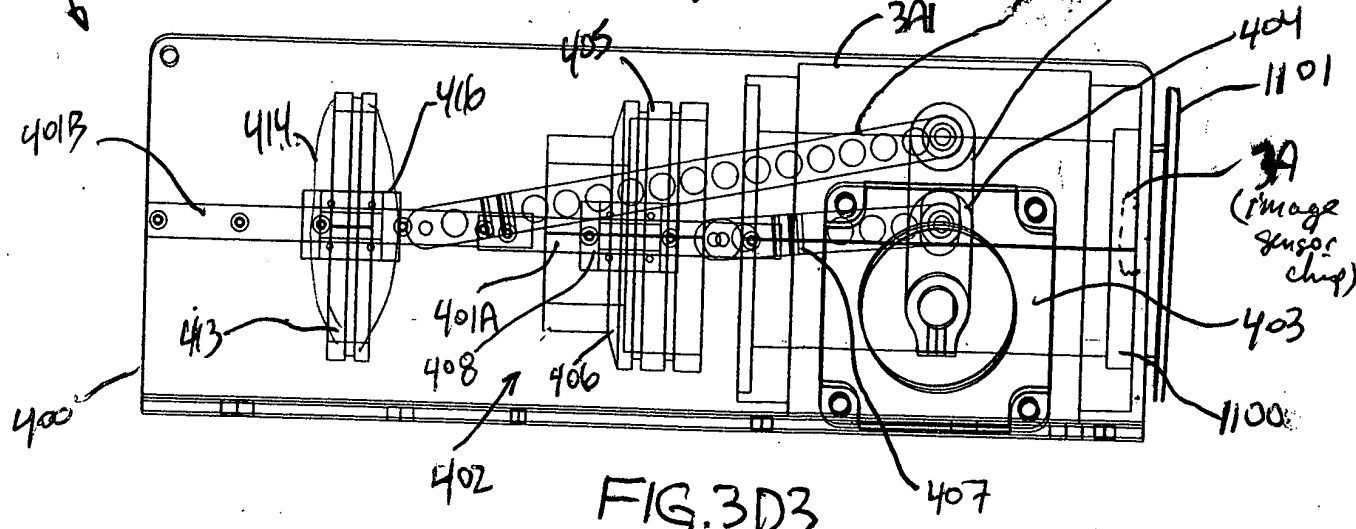
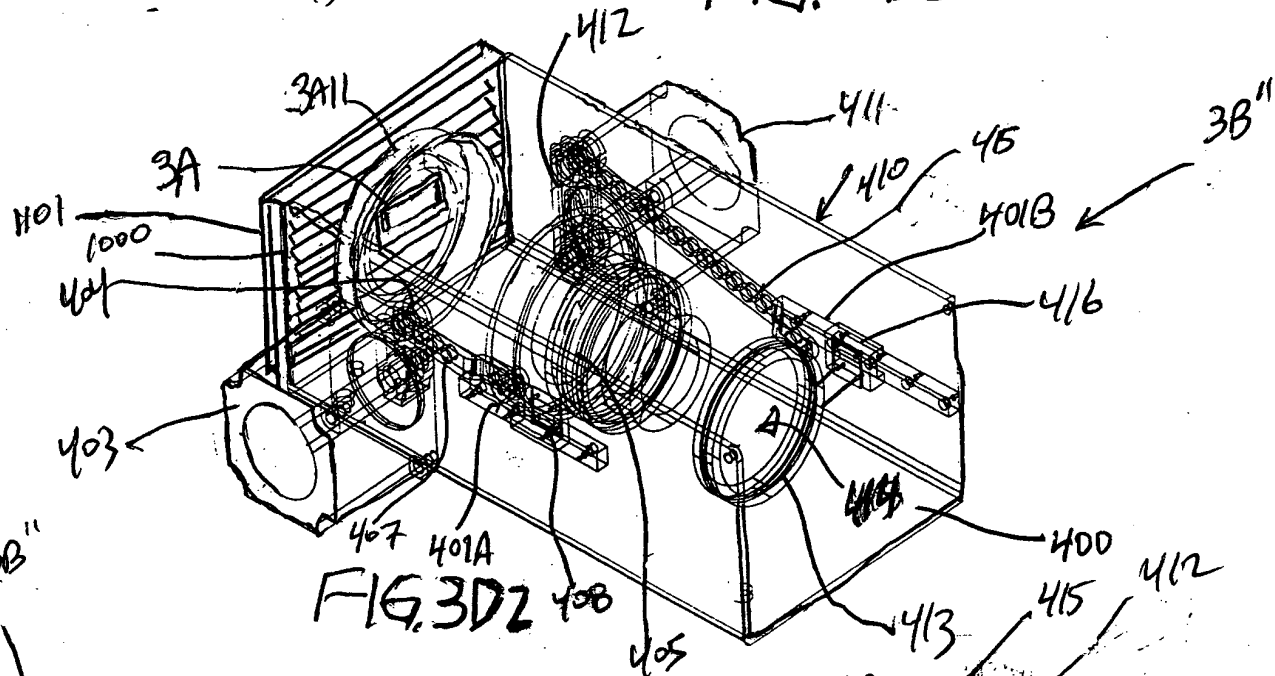
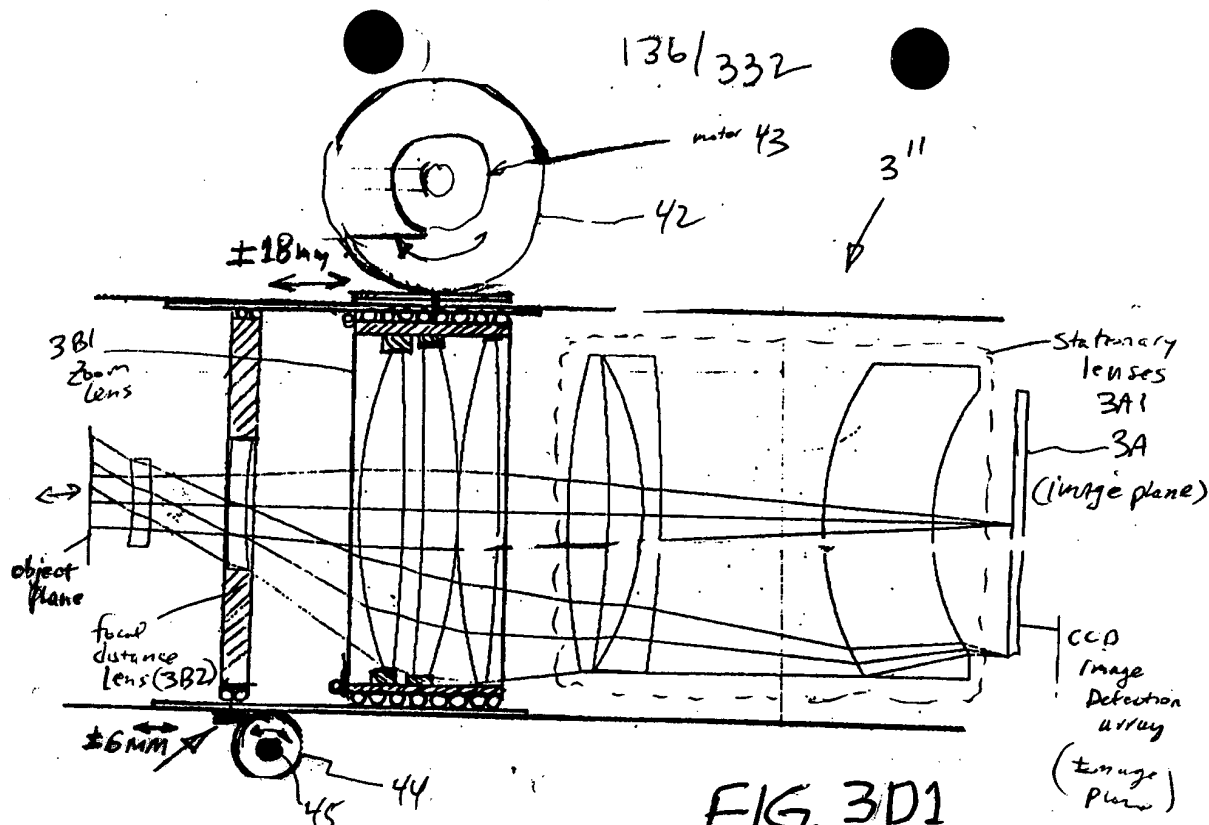
FIG 3C1

135/332

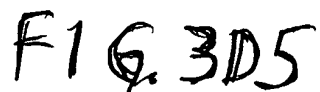


- Variable focal length camera lens
- Variable focal distance

FIG. 3CZ



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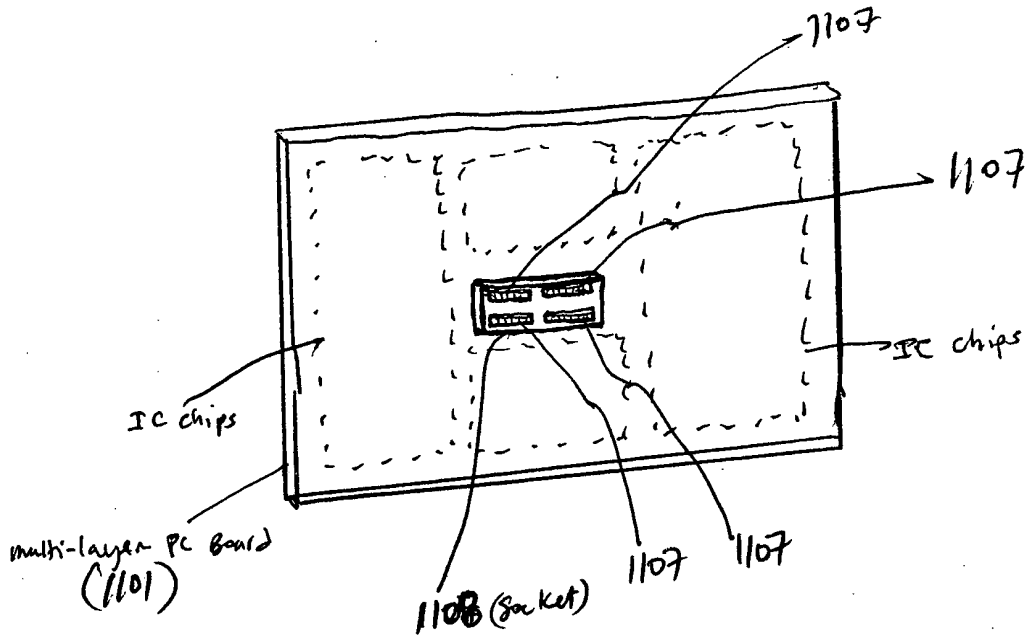


FIG. 3D6

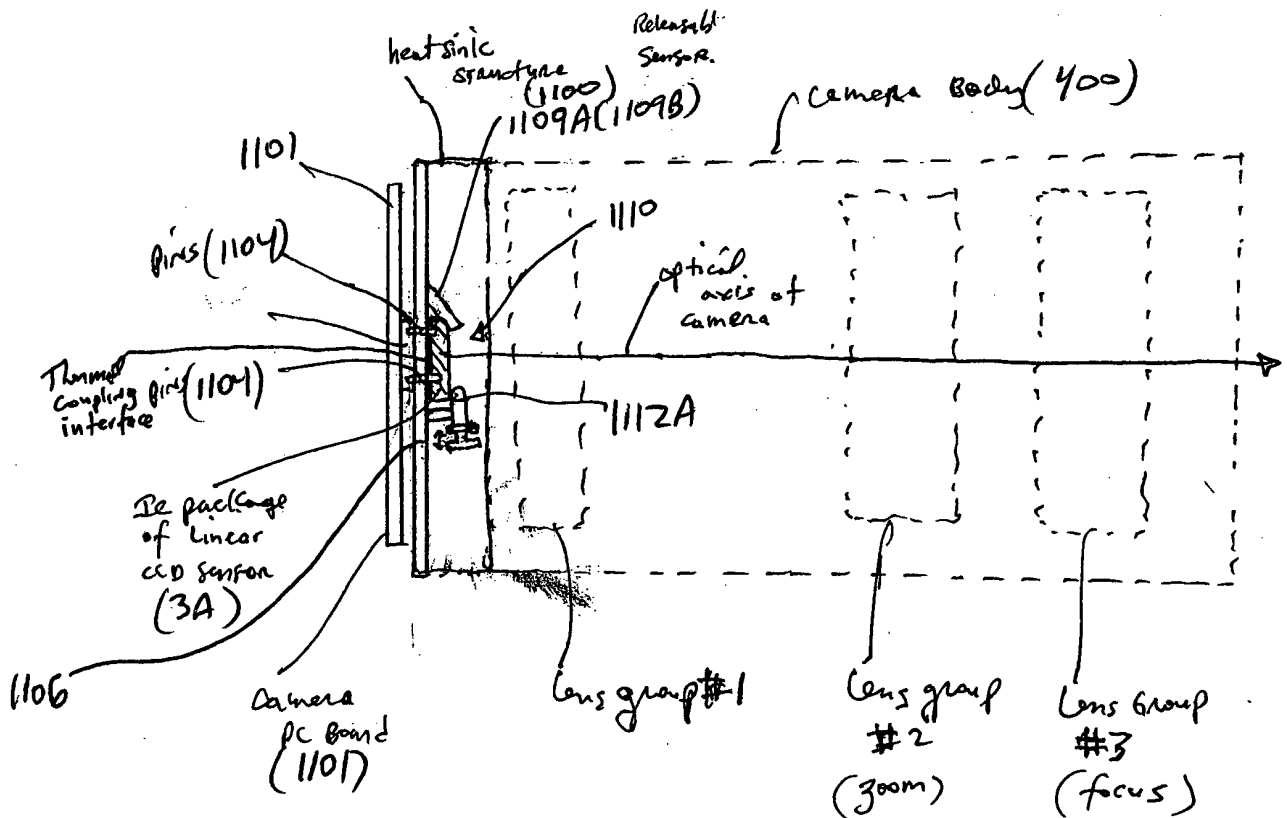


FIG. 3D7

139/332

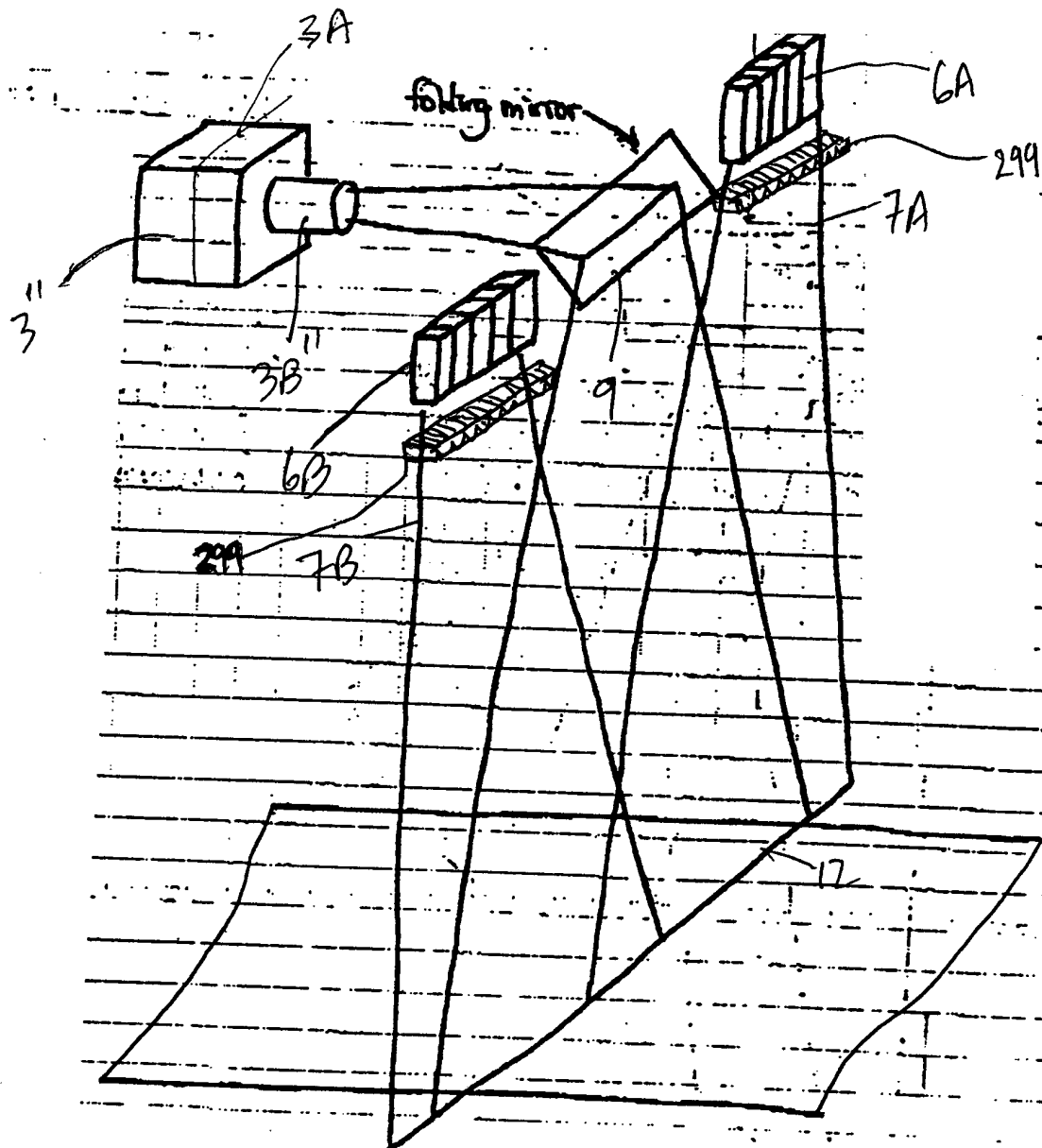
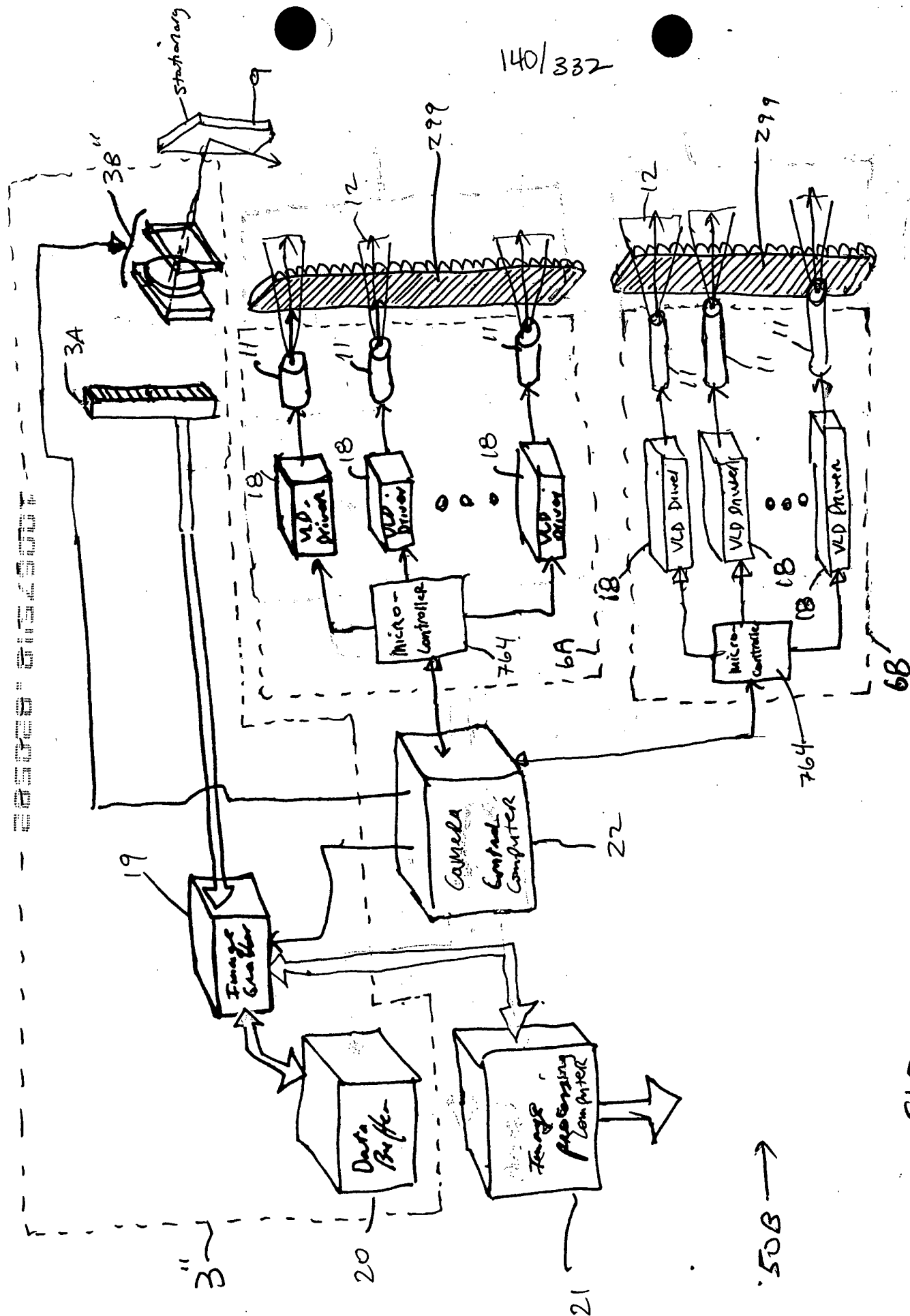


FIG. 3E1



141/ 3321

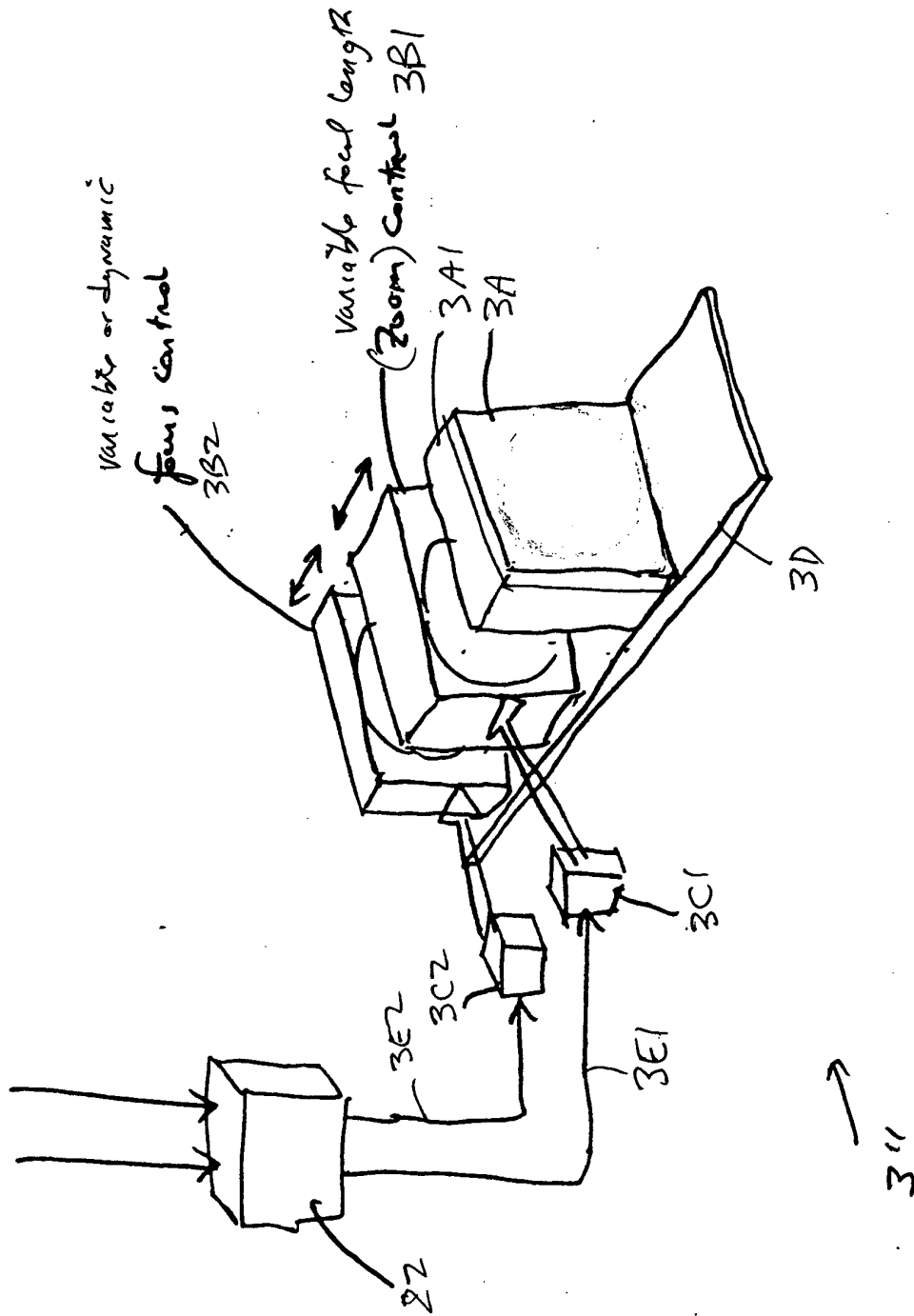


FIG. 3E3

142 | 332

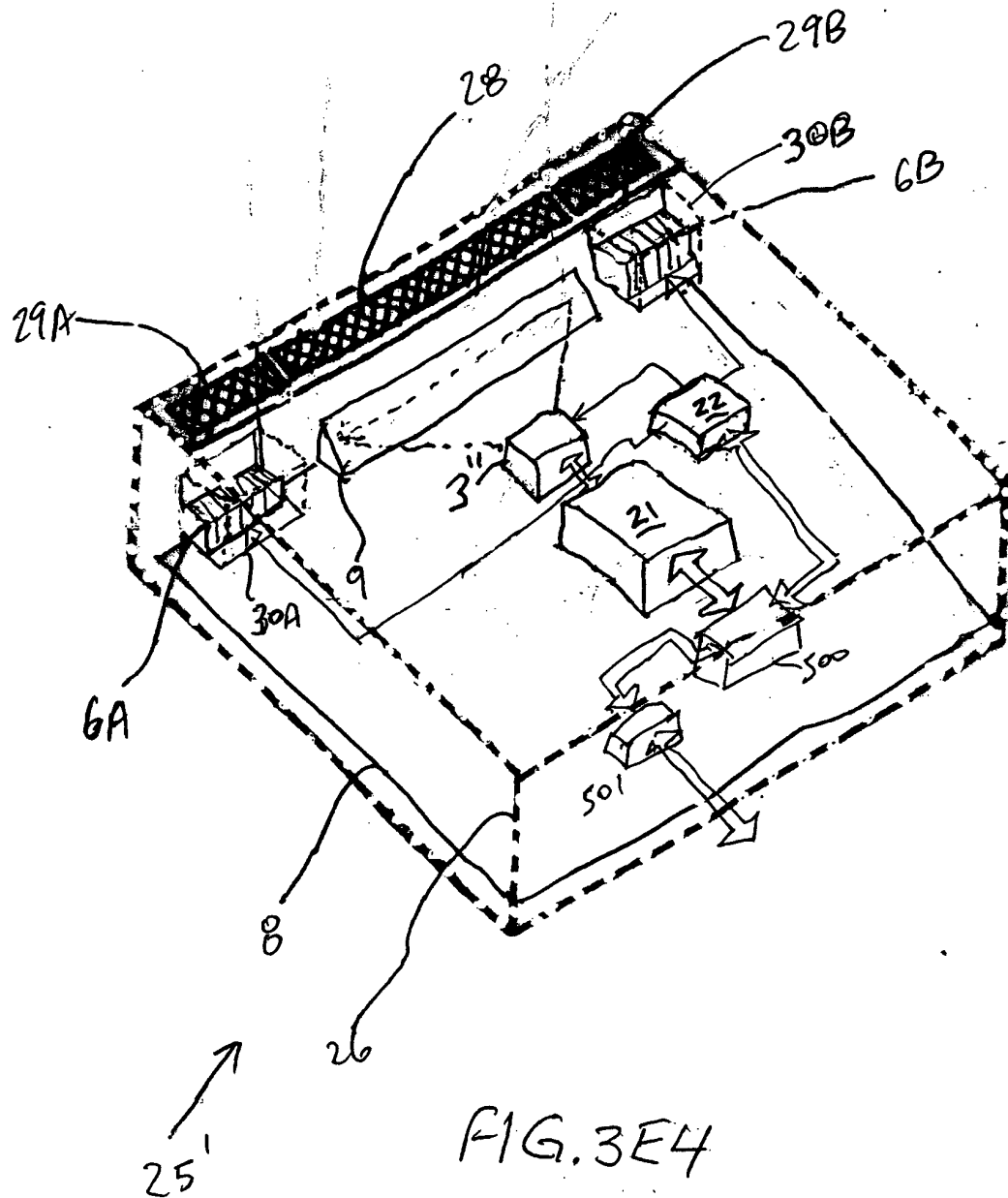


FIG. 3E4

143/332

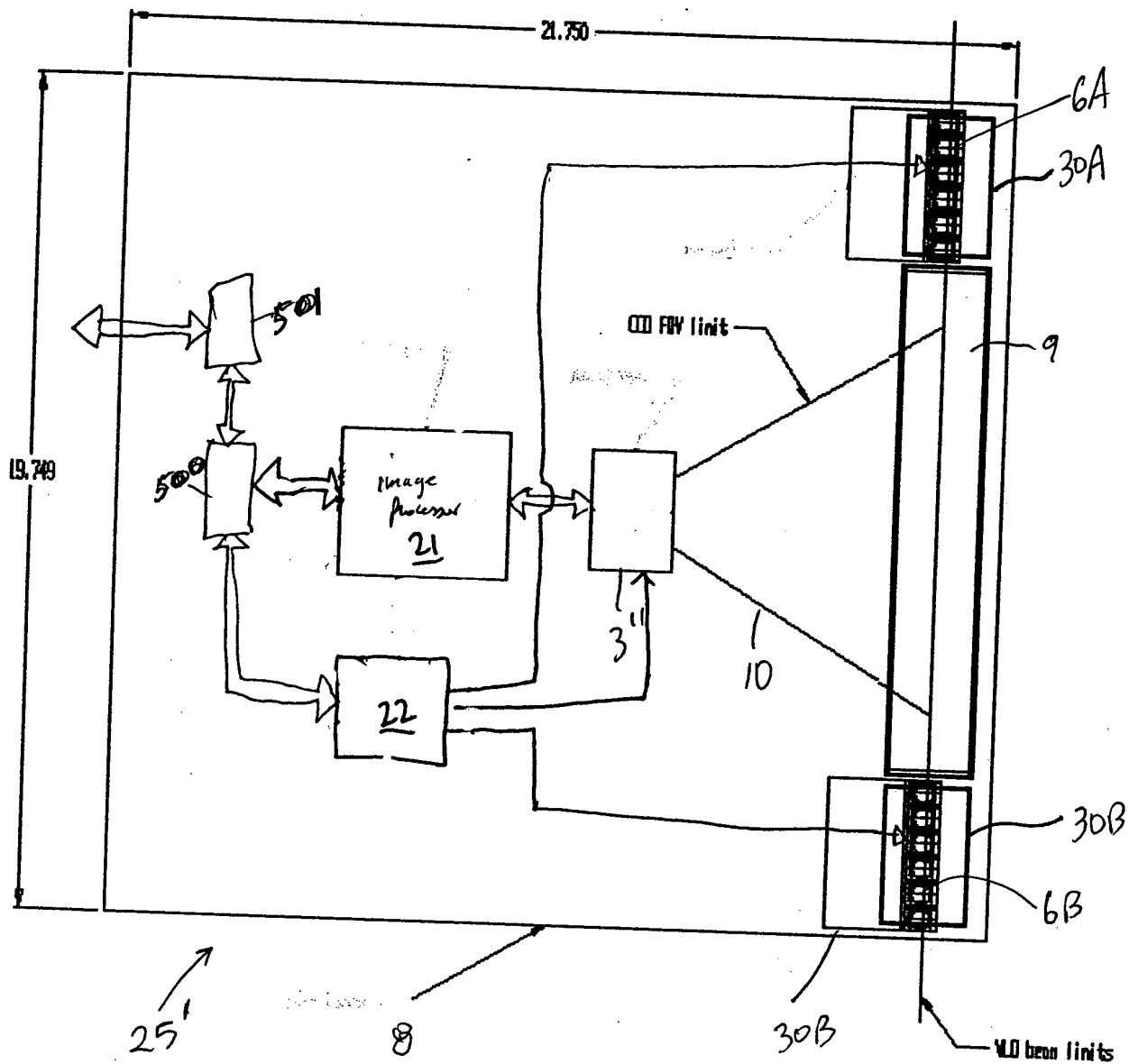


FIG. 3E5

144/332

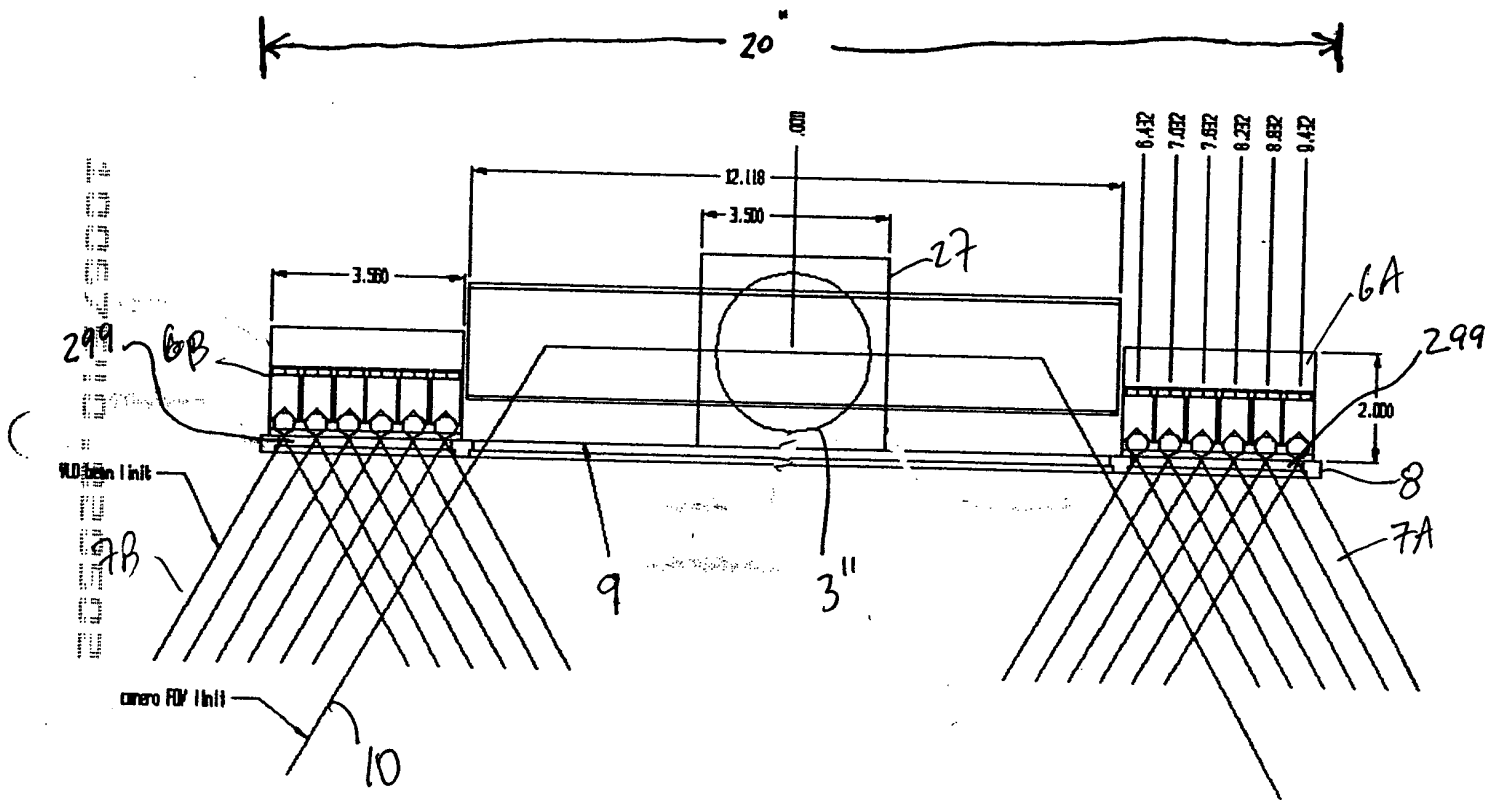


FIG. 3E6

145/332

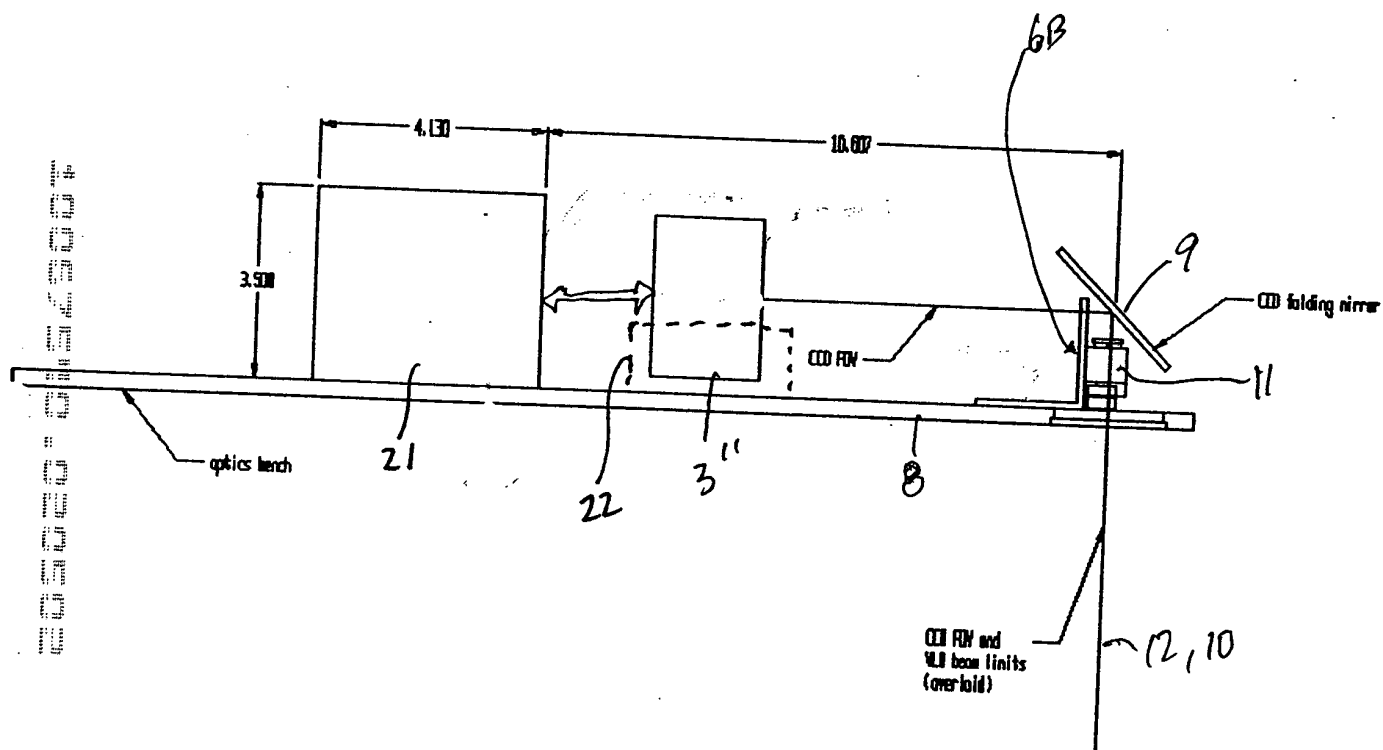


FIG. 3E7

146/332

★ Variable FOV

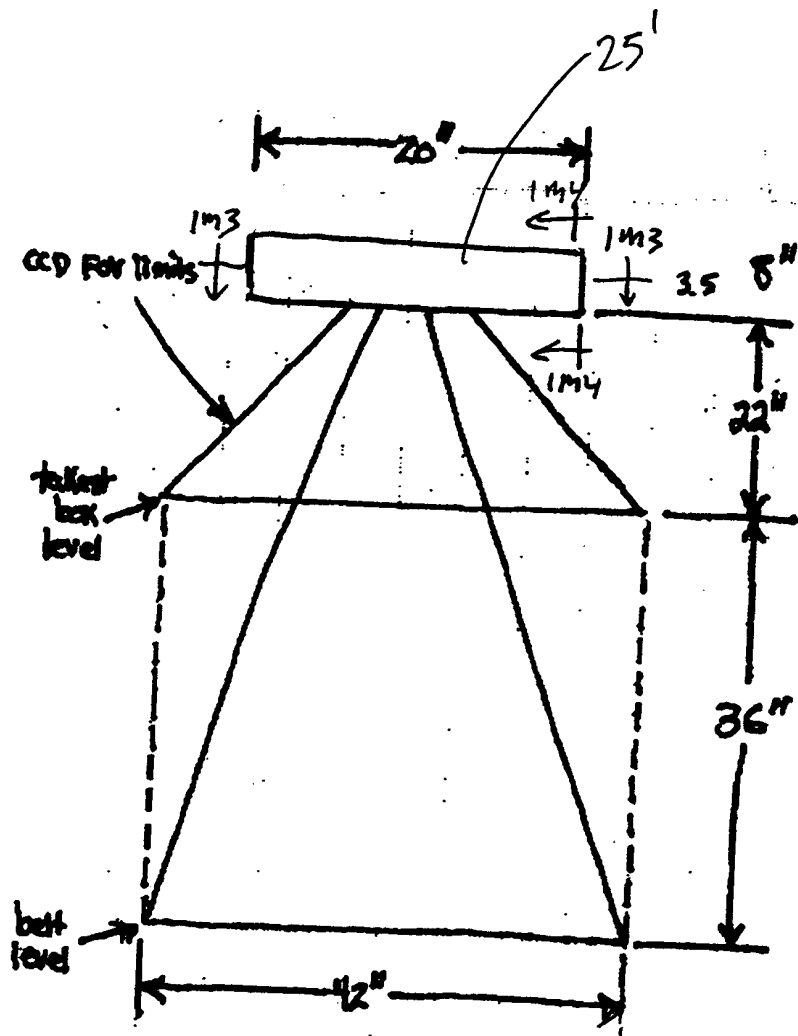


FIG. 3E8

147/332

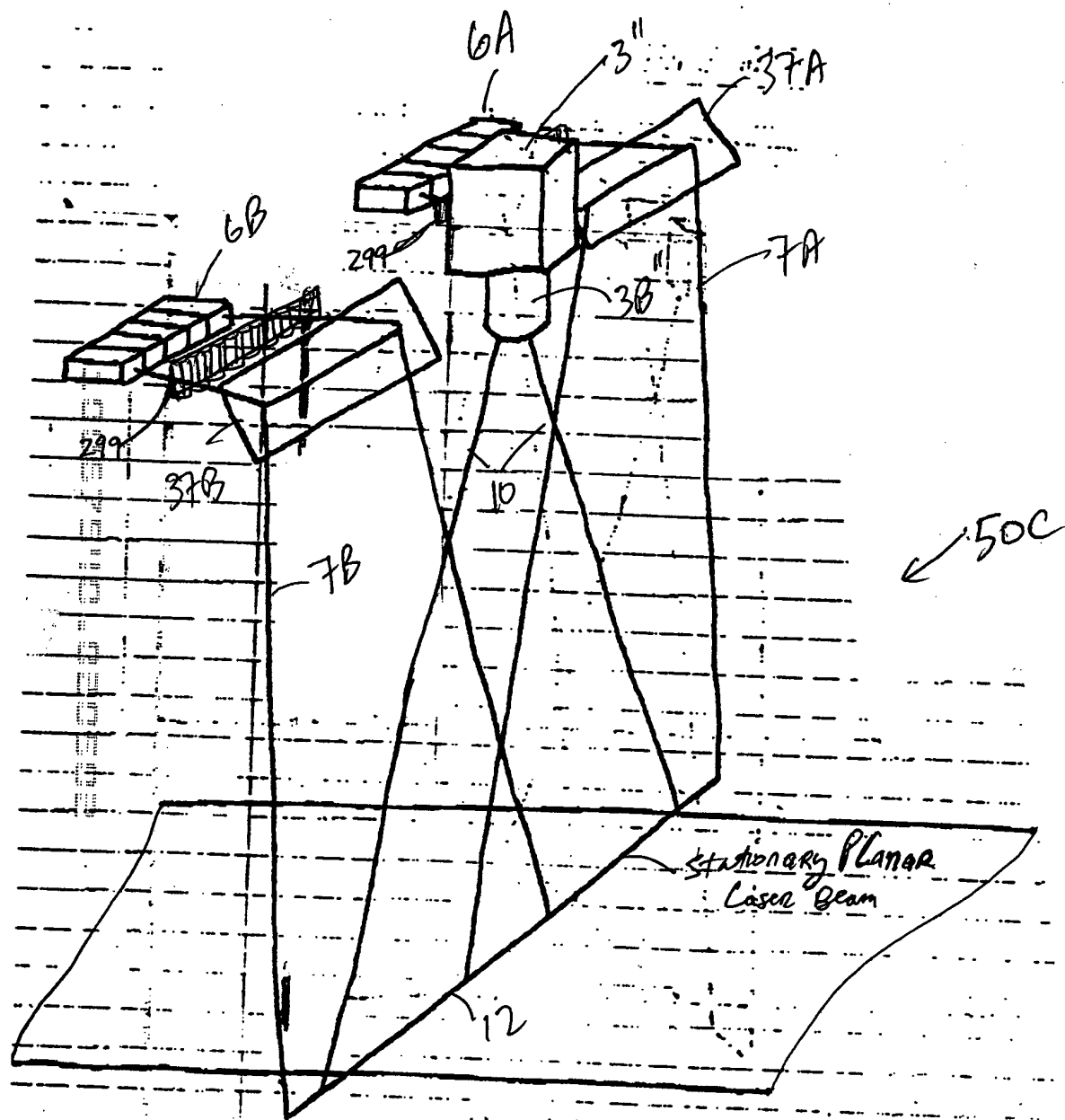


FIG 3F1

148/332

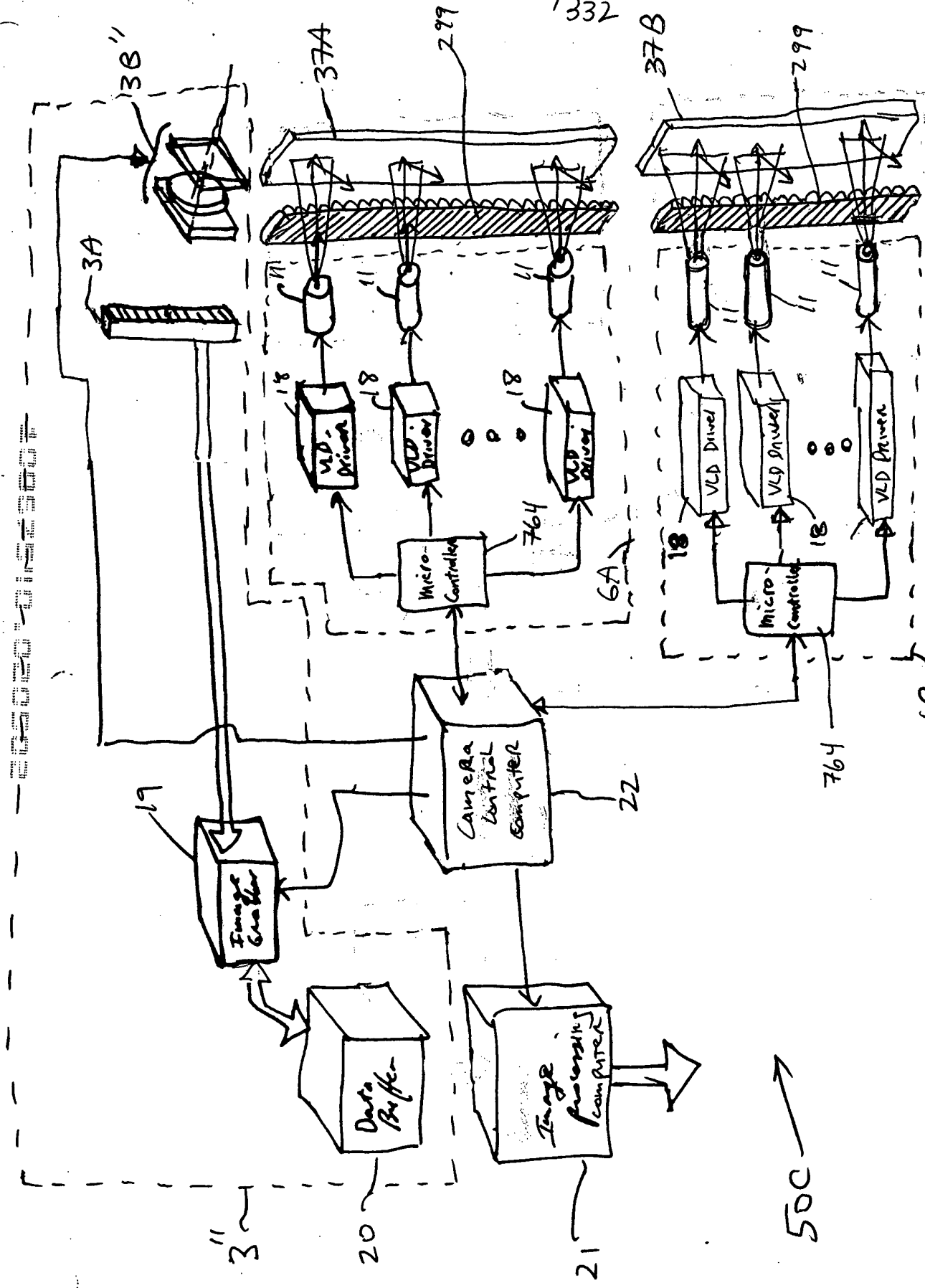


FIG. 3F2

149/332

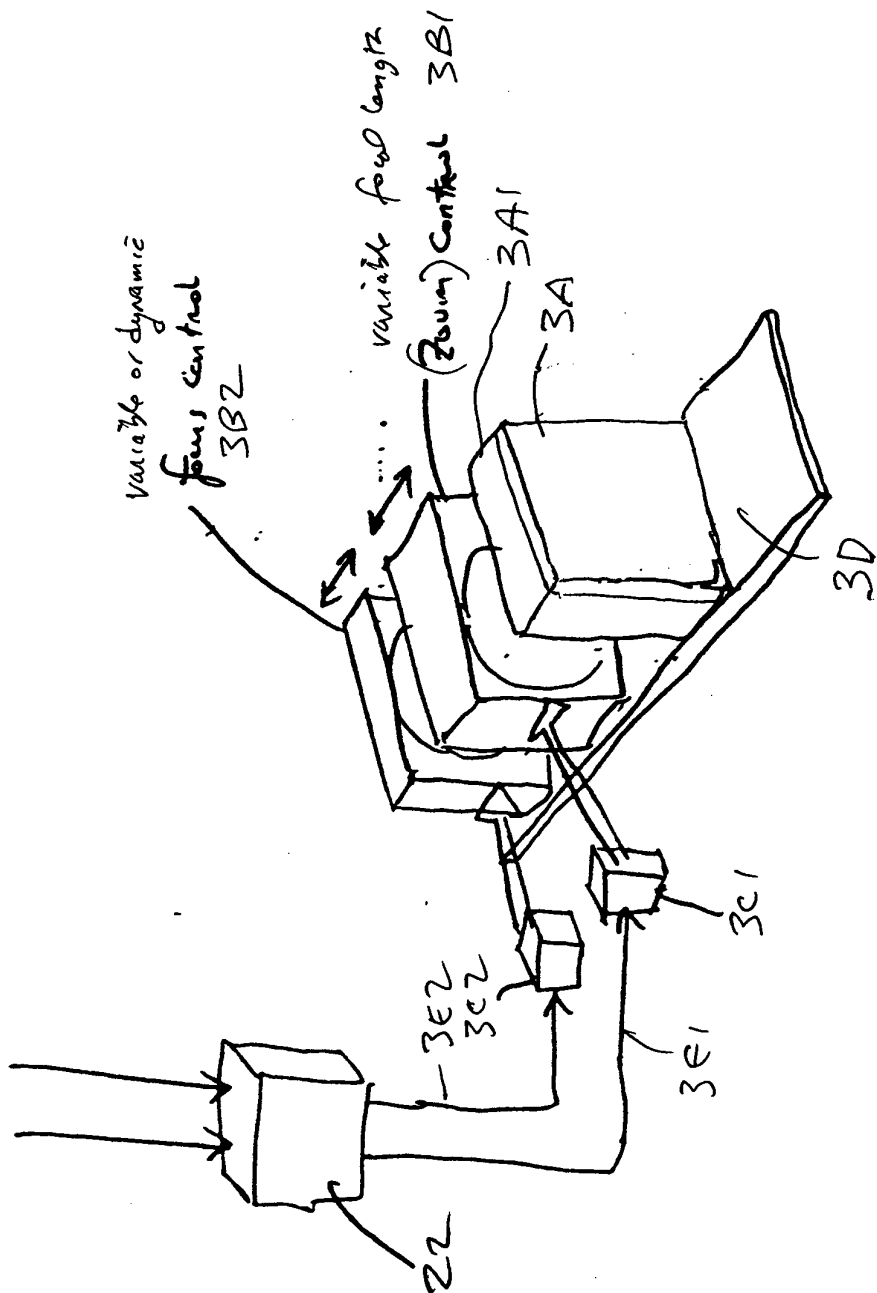


FIG. 3F3

150/332

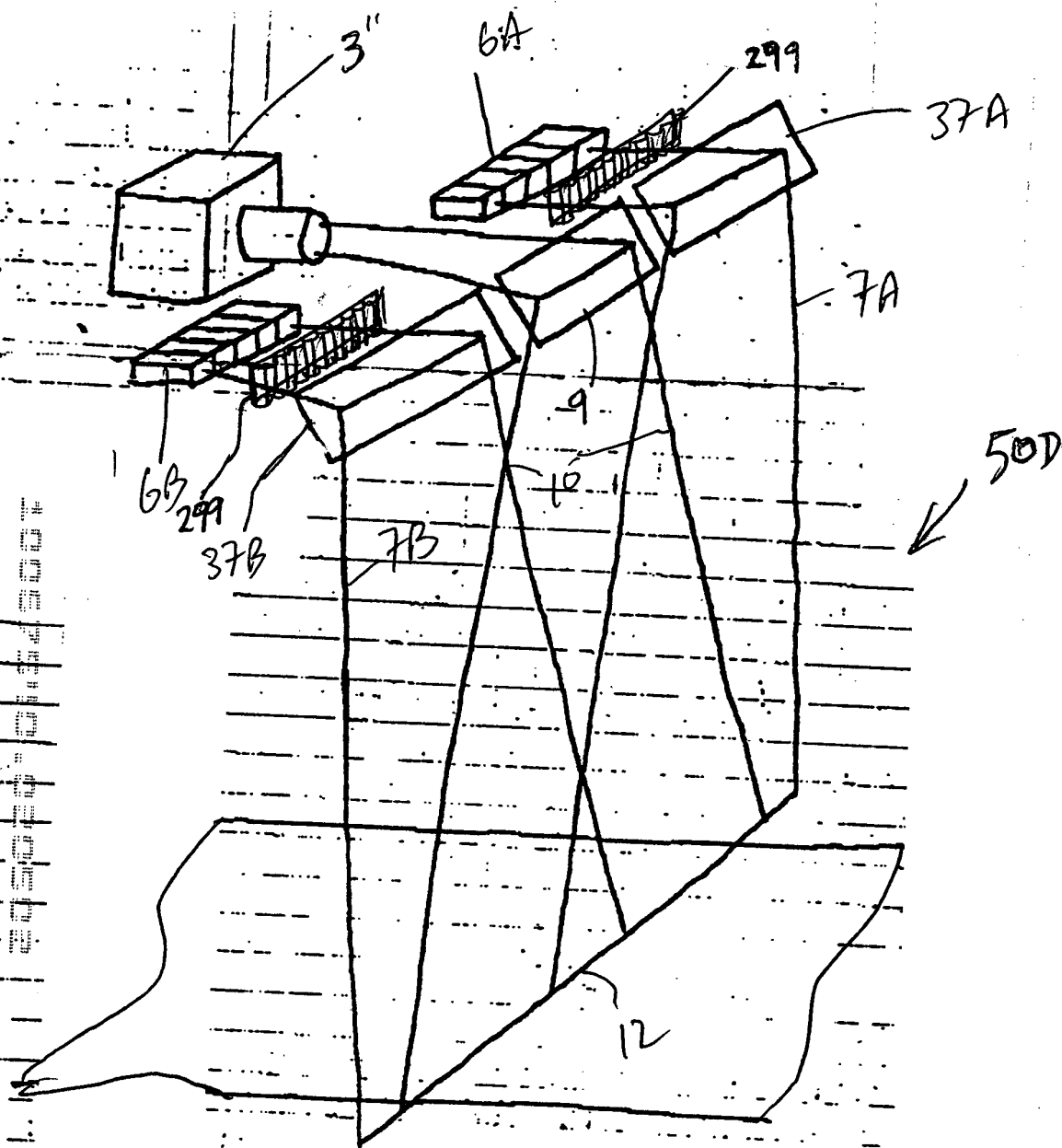
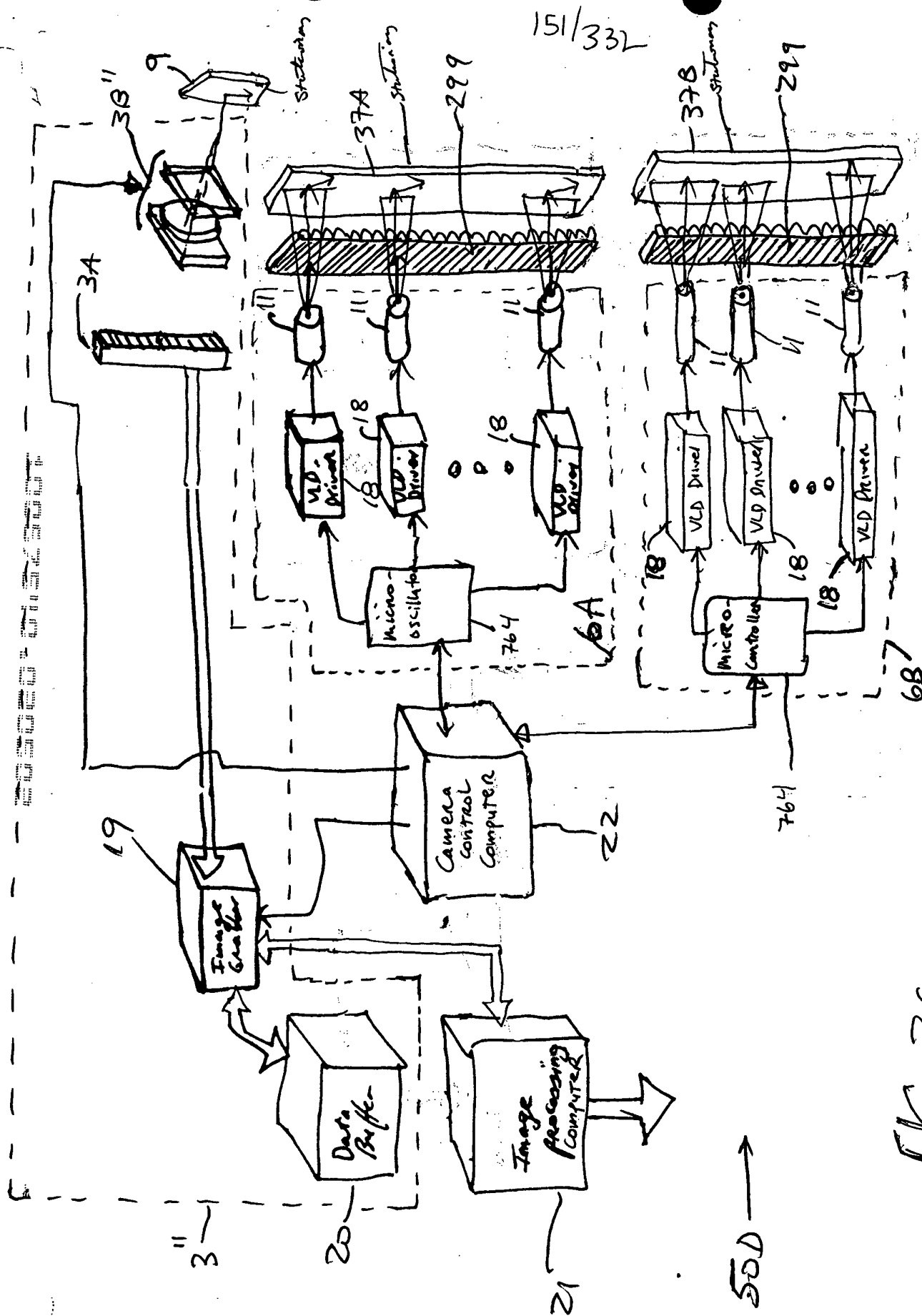


FIG. 3G1



151/332

152/332

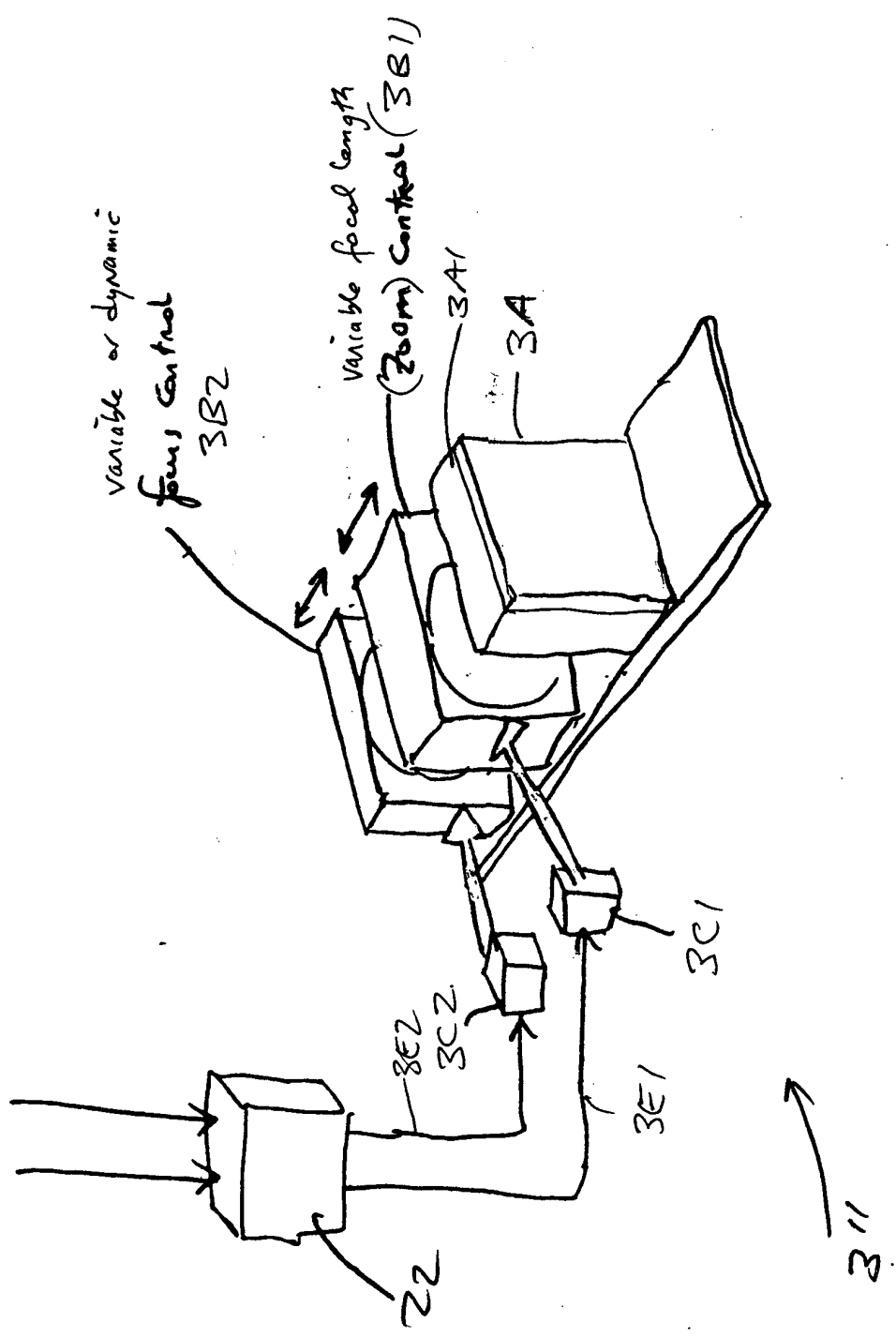


FIG. 3G3

153/332

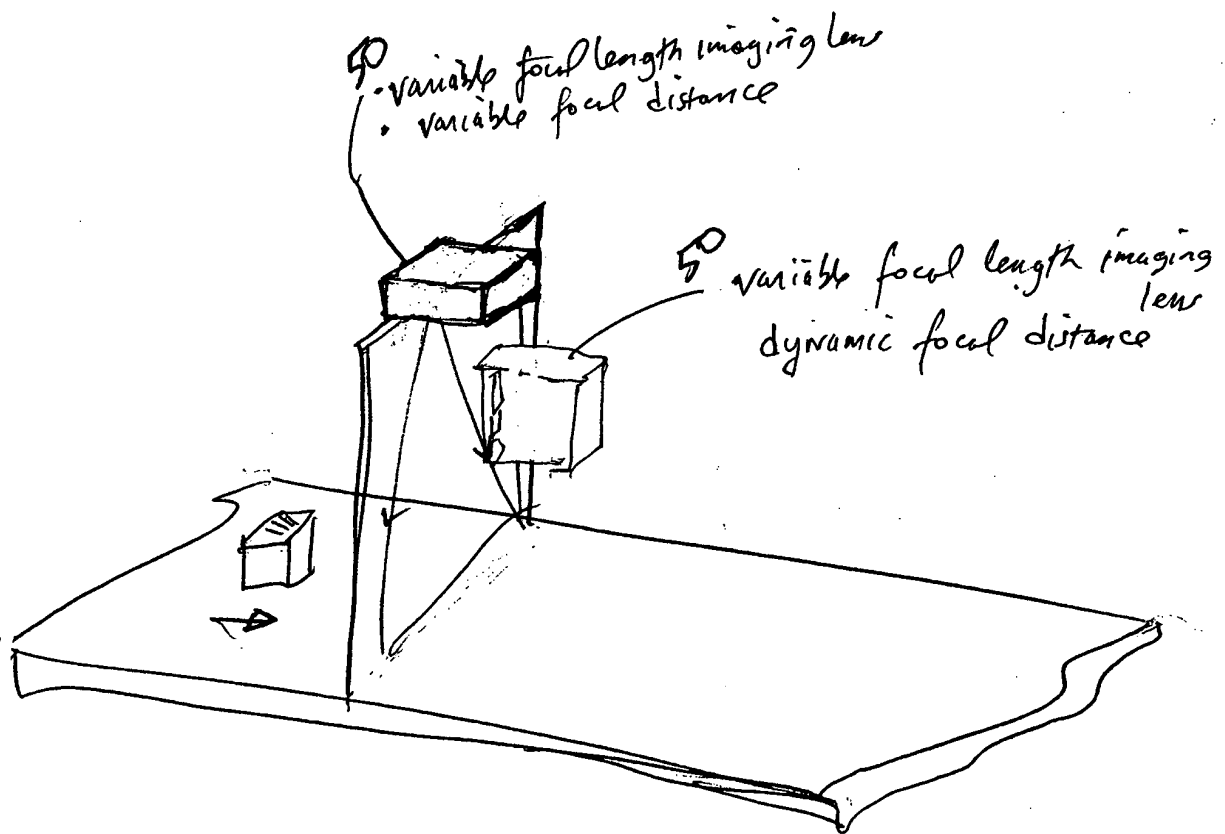


FIG. 3H

00000-0132300T

154/332

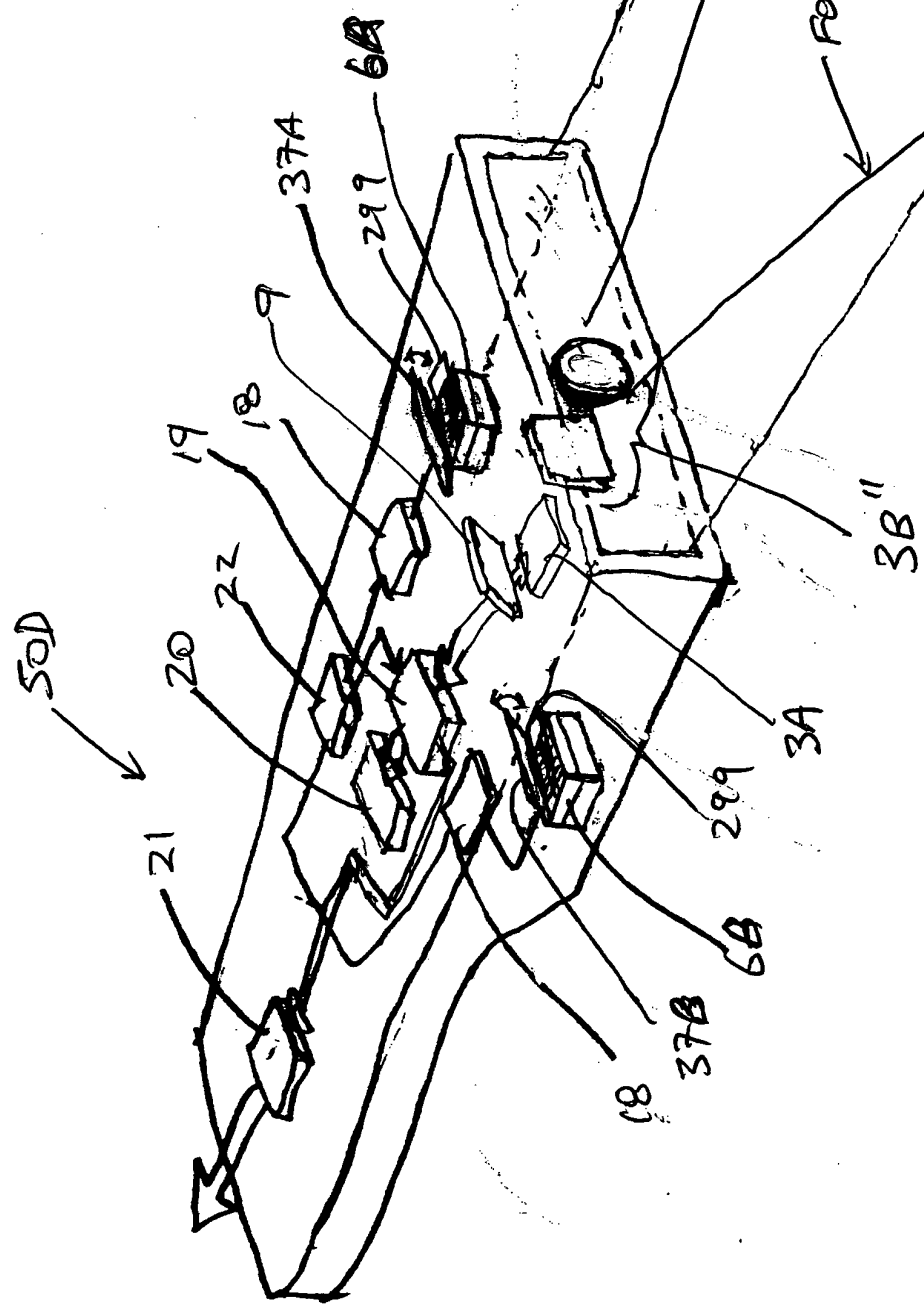


FIG. 3I

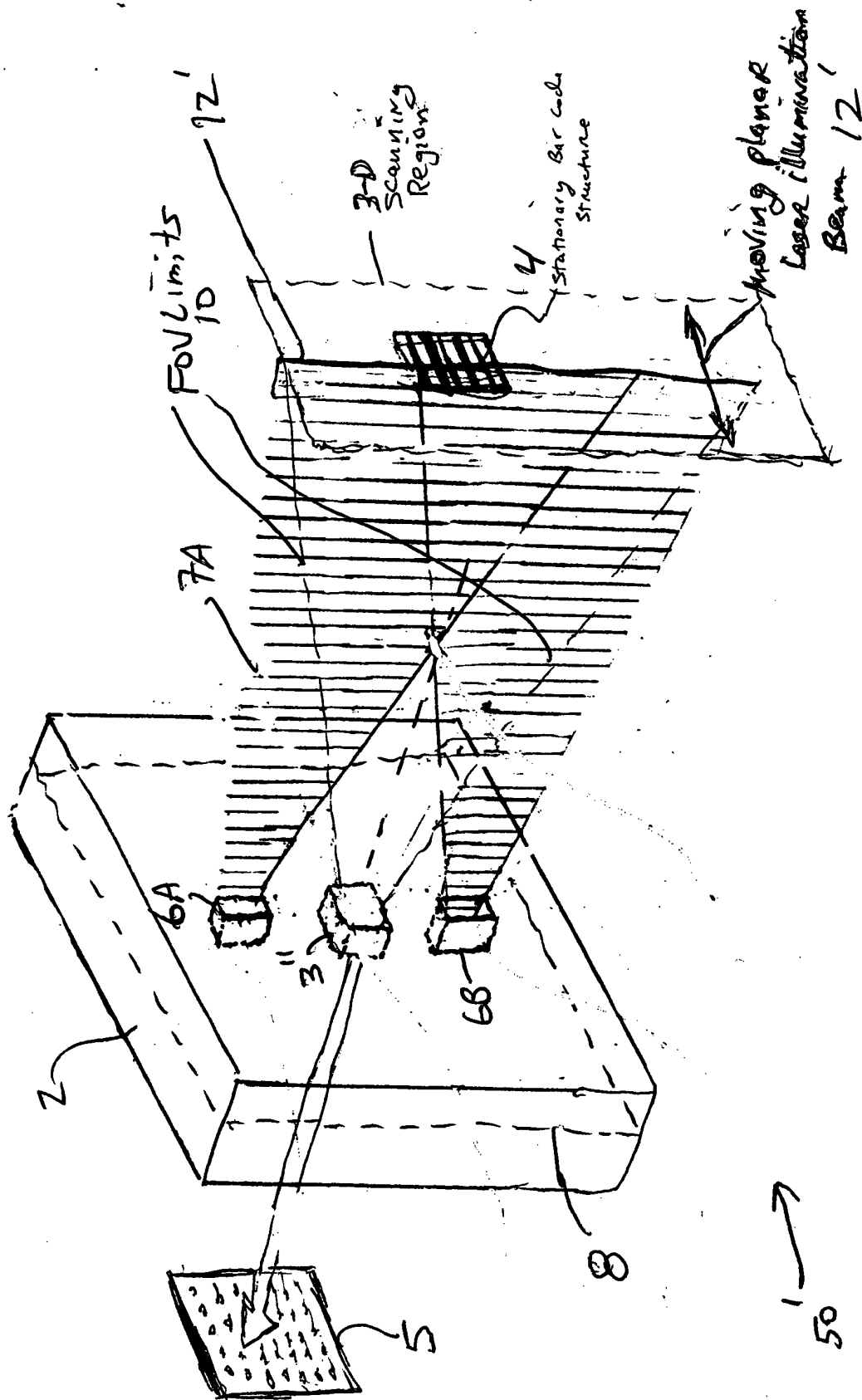


FIG. 3J1

15b/332

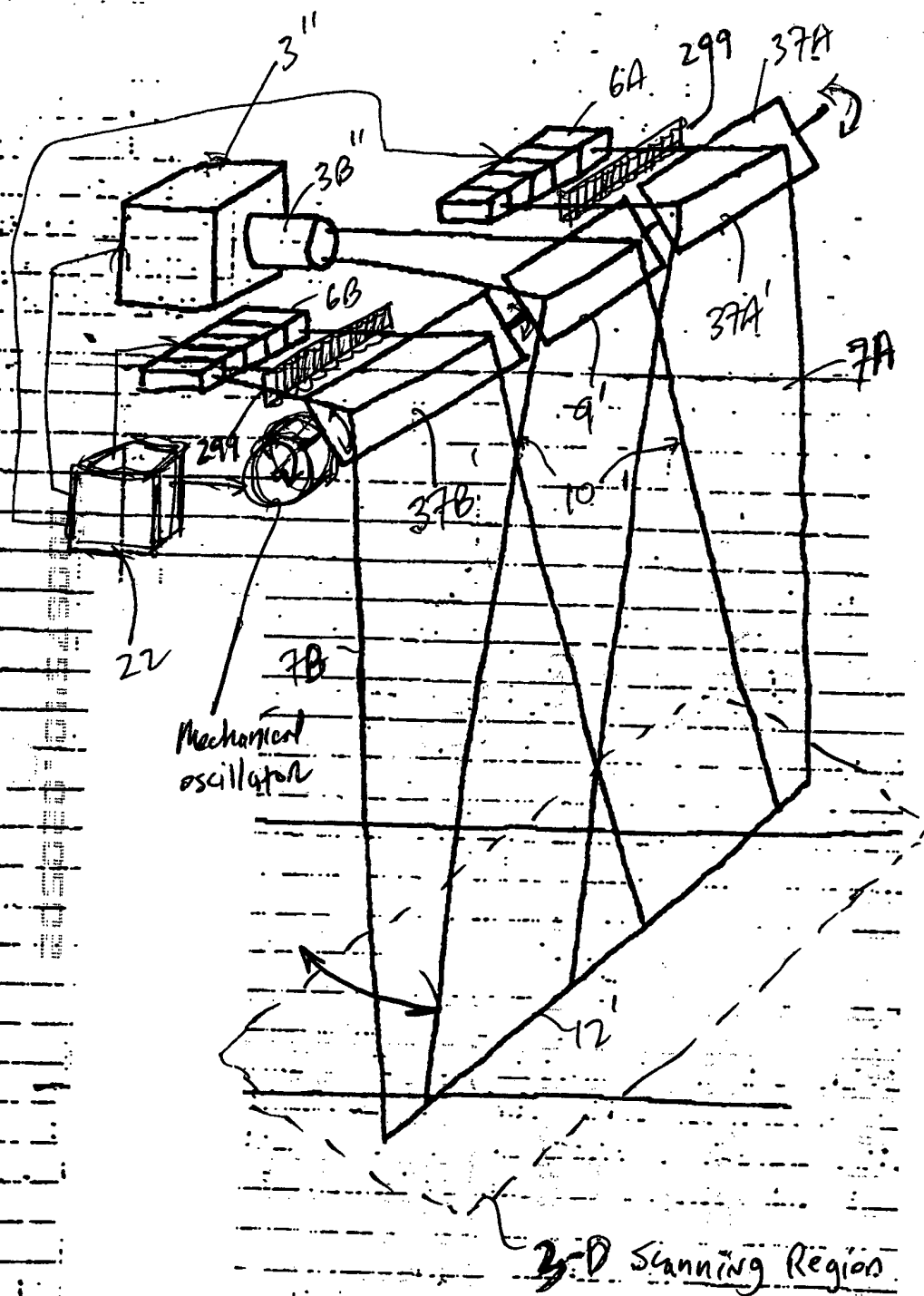
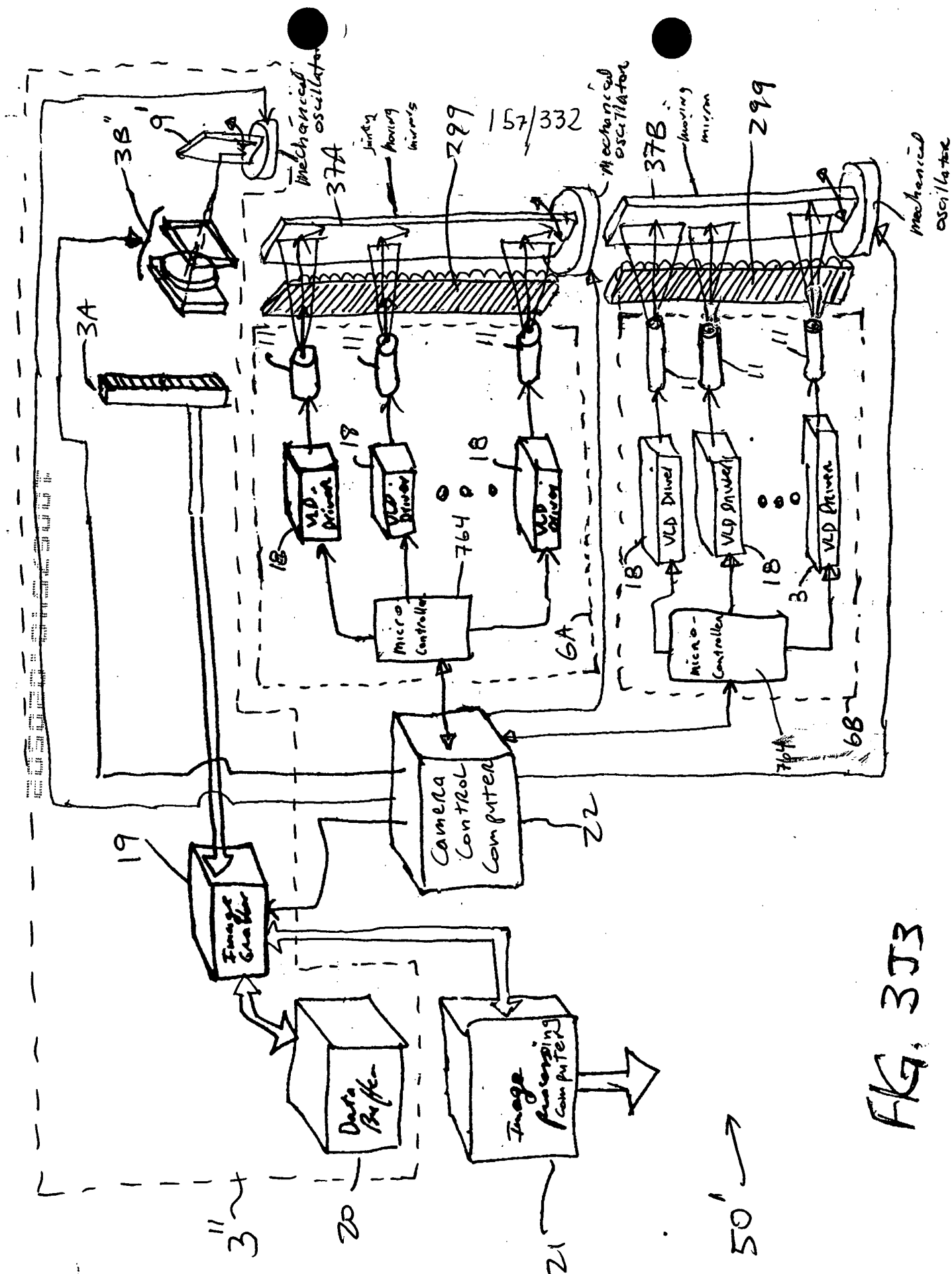


FIG 3J2



158/332

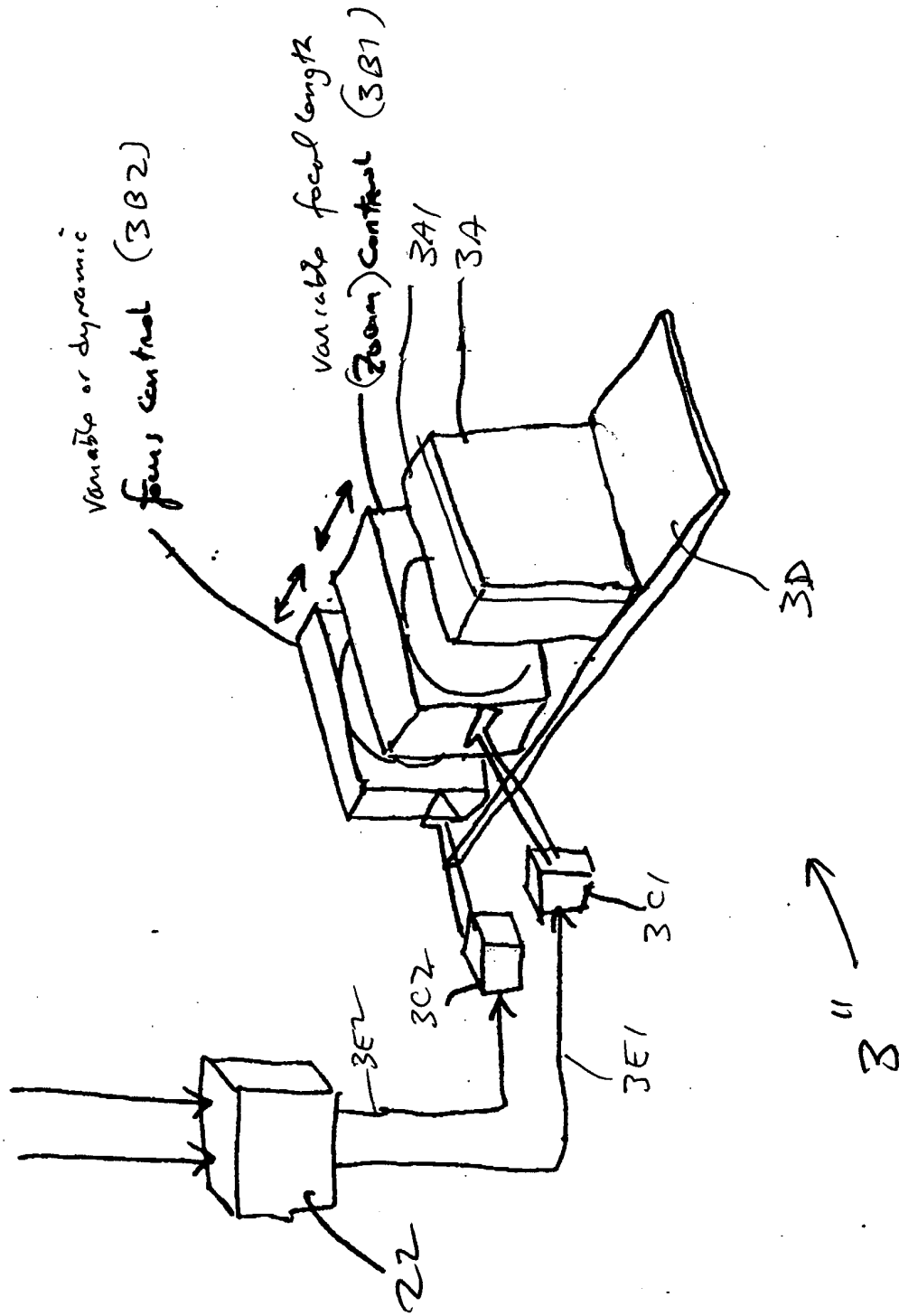
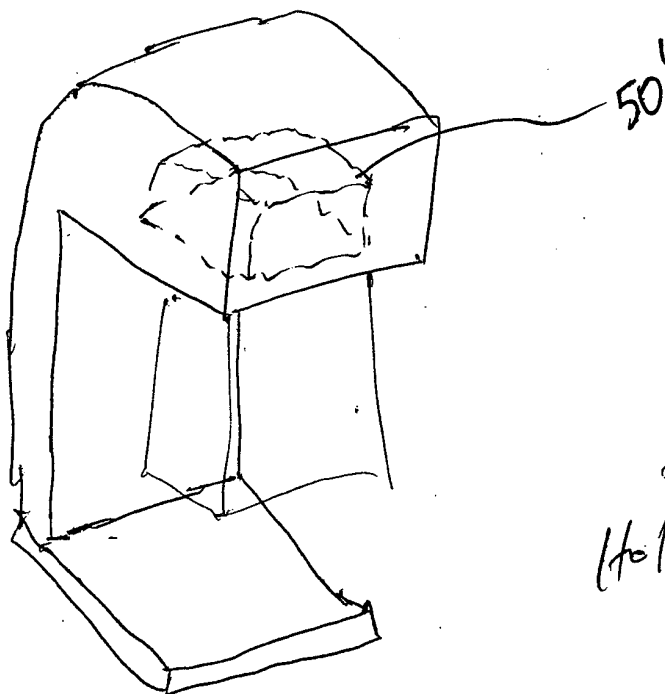


FIG. 354

FIG. 3T5

160/332



2-D
Hold-under
Scanner

FIG. 3J6

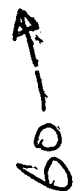


FIG 4A

161/332

moving
planar
illumination
beam

FOV Limits 10

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6B.

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6A

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162/332

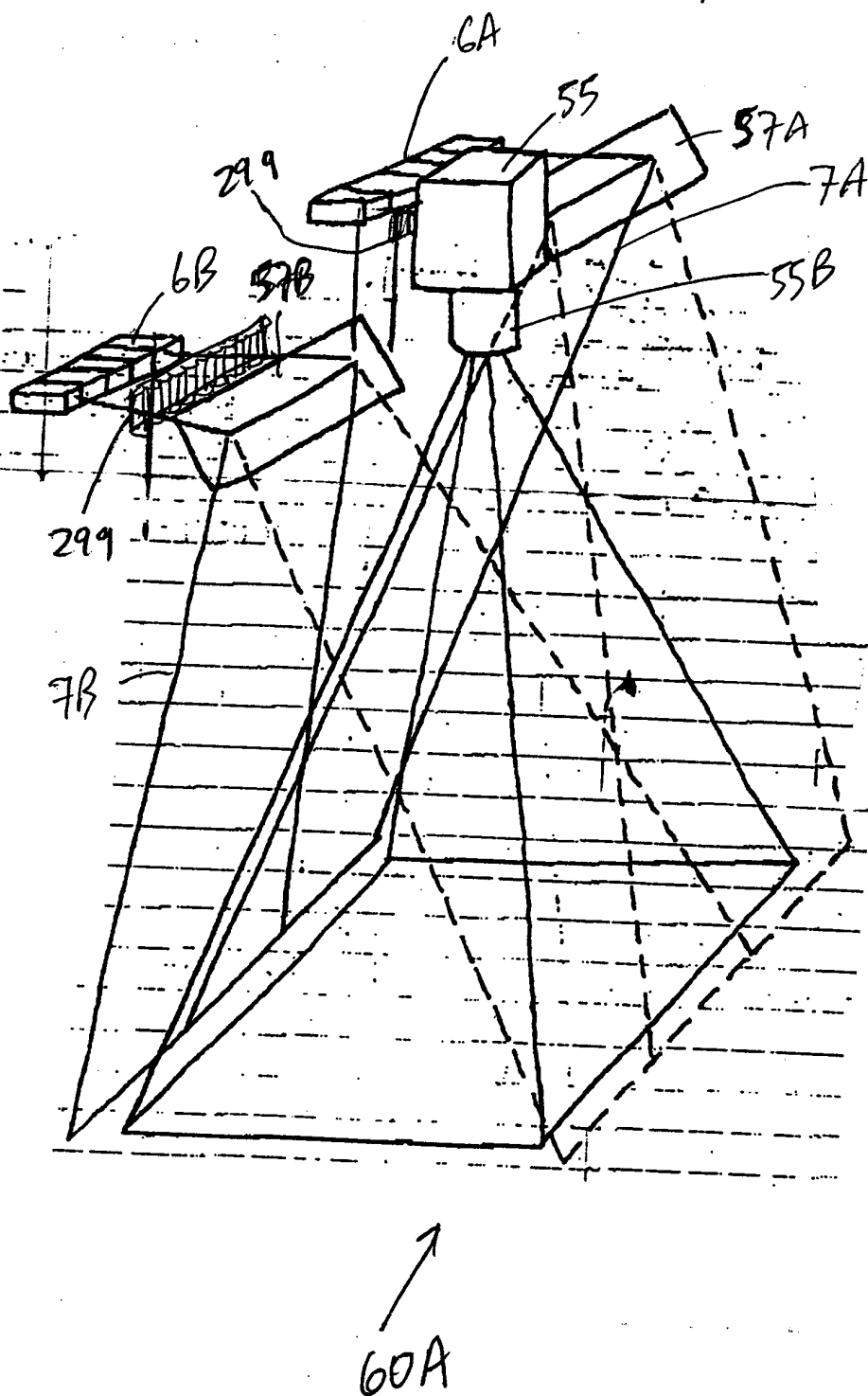


FIG. 4B1

163/332

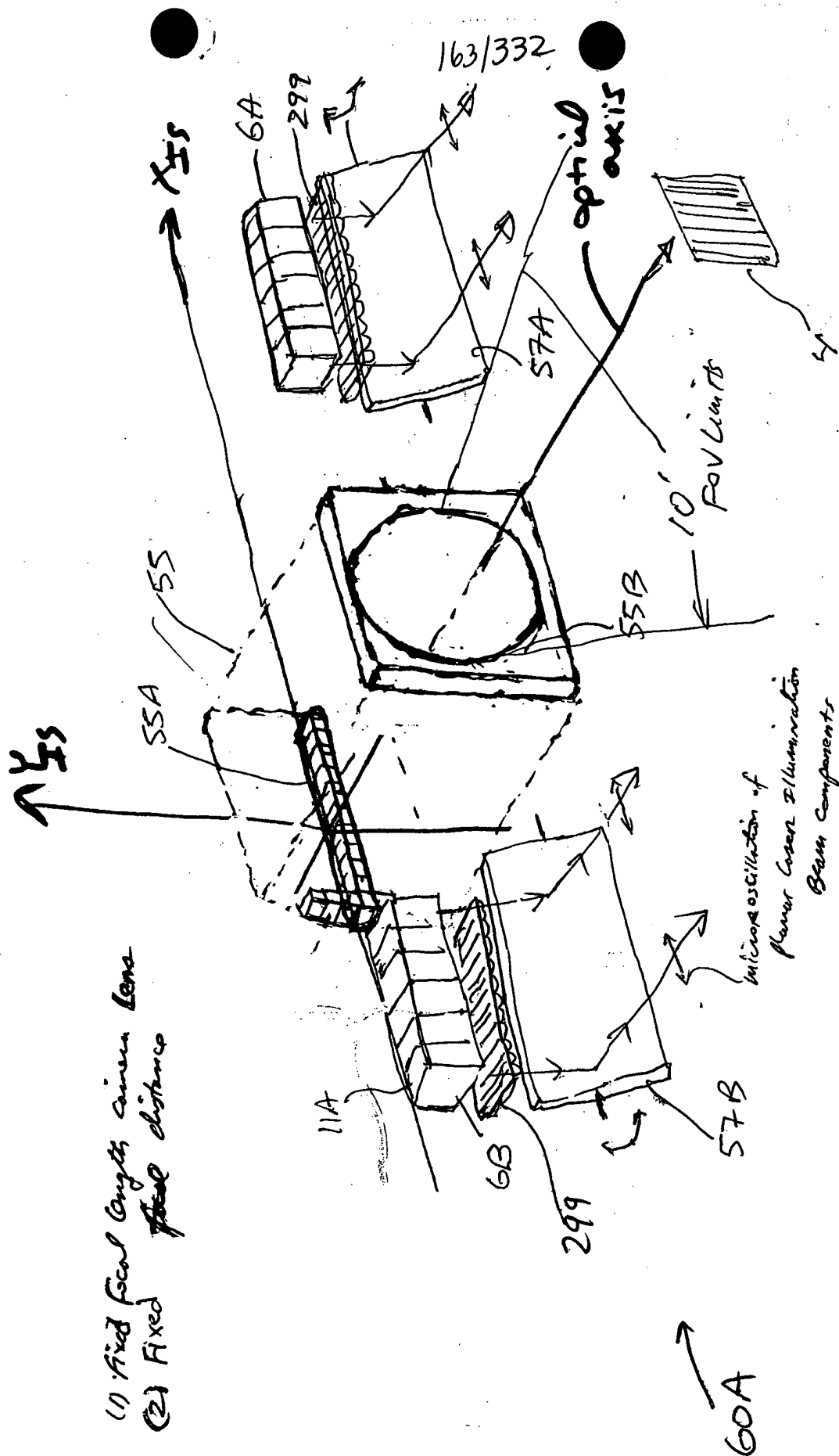


FIG. 4BZ

164/332

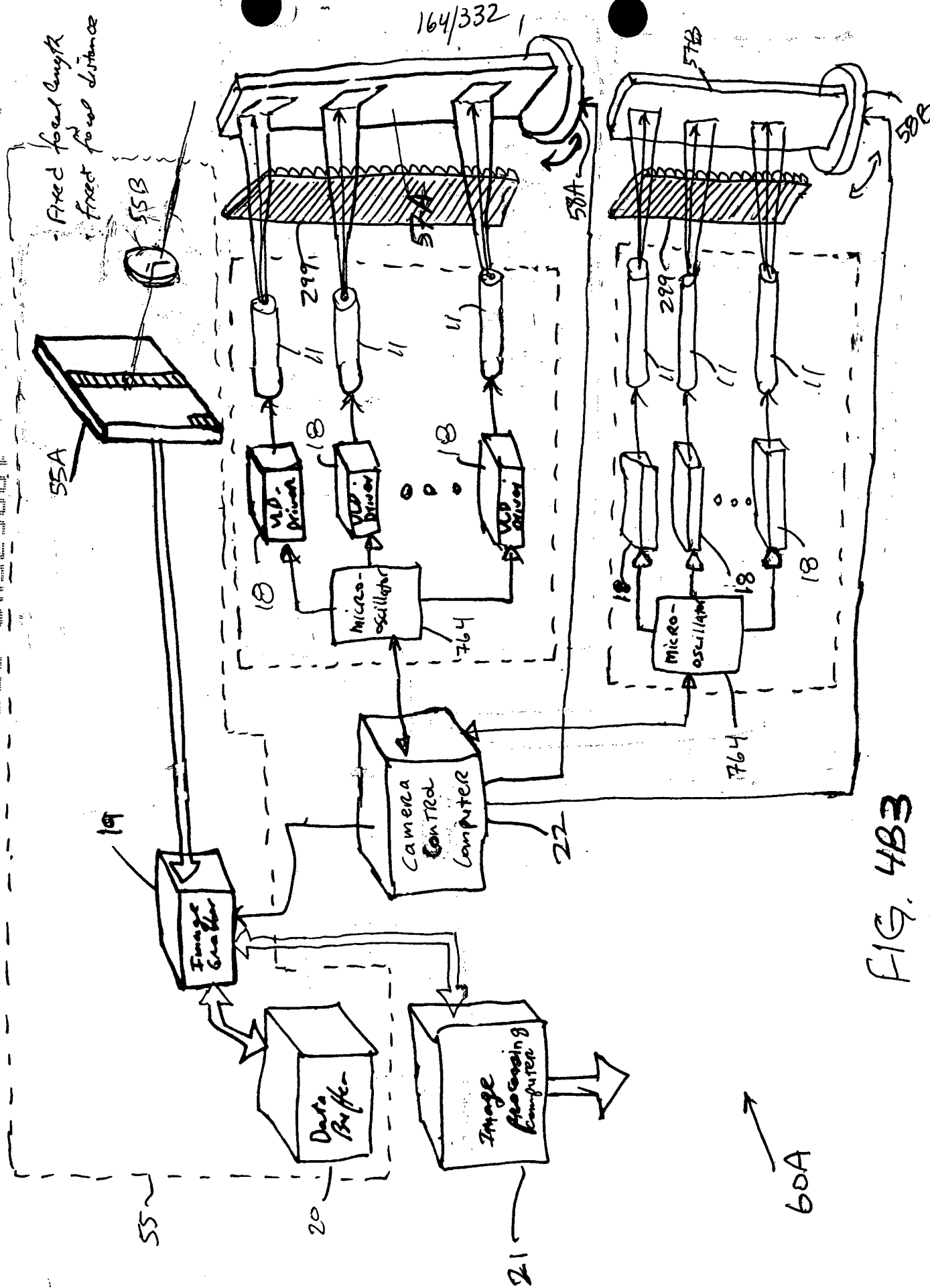


FIG. 4B3

165/332

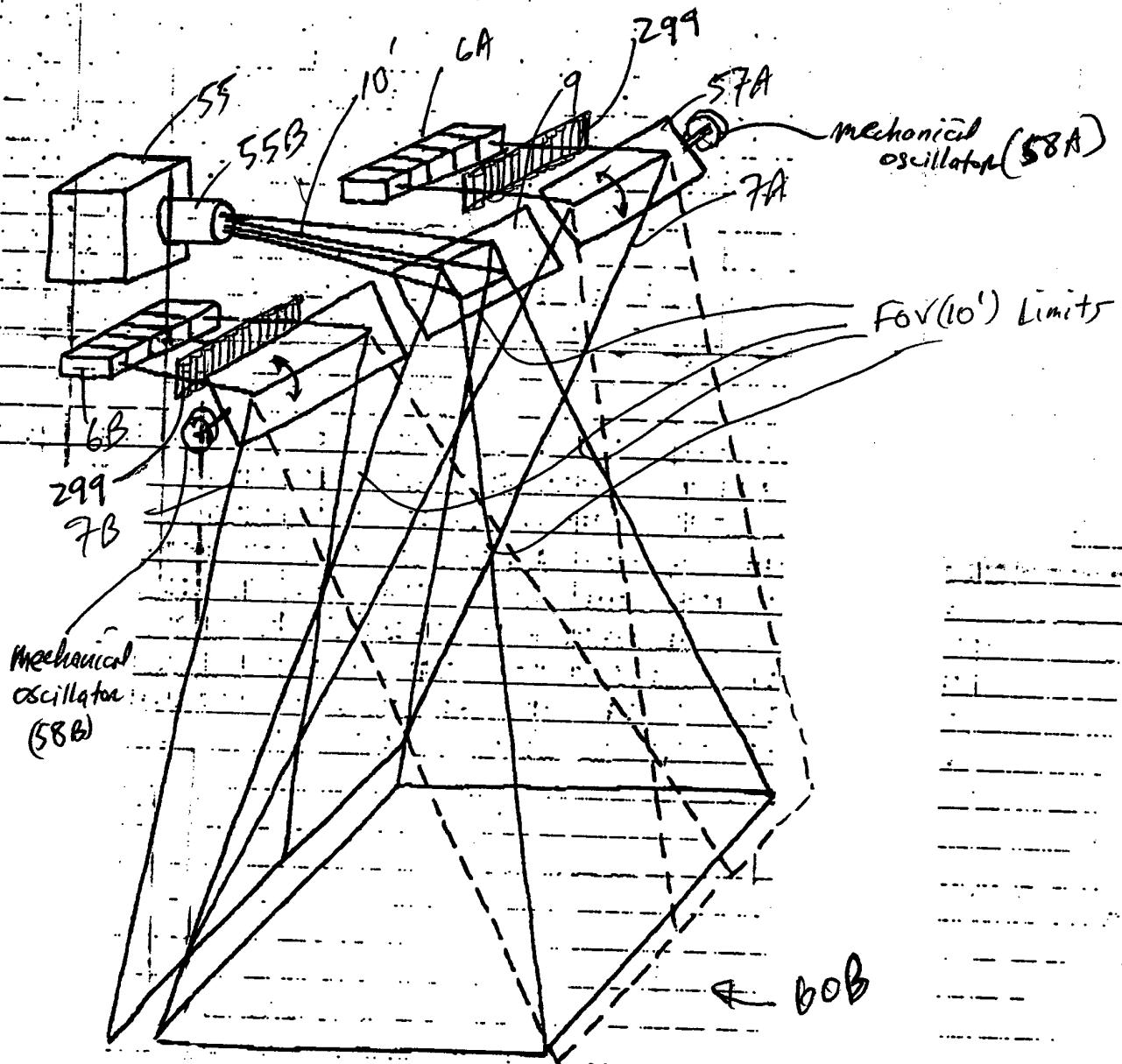


FIG. 4C1

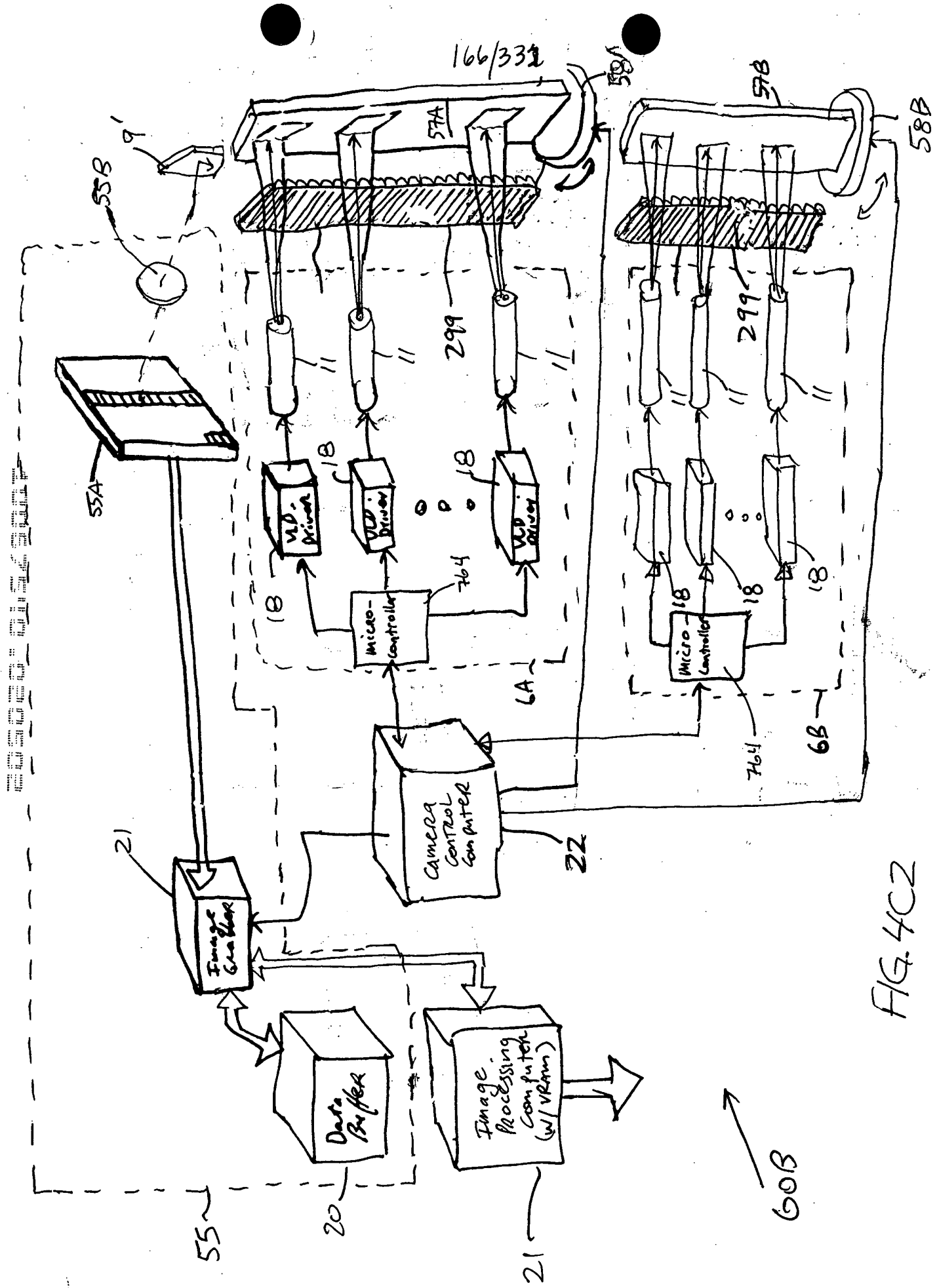


FIG. 4C2

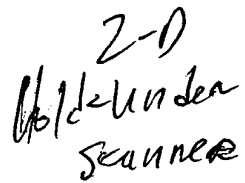
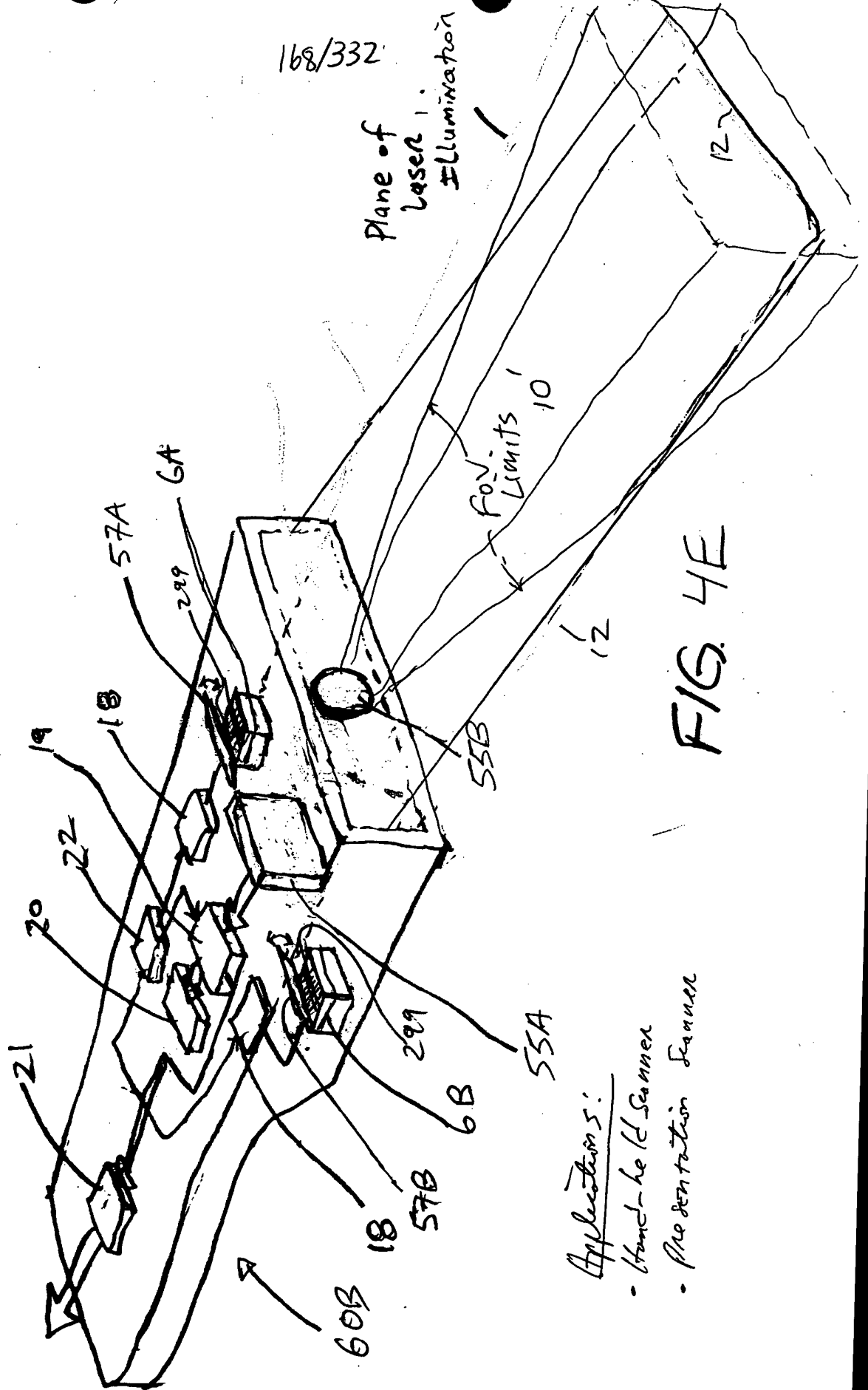
[illegible]

FIG. 4D

168/332



Applications:

- Hand-held Scanner
- Presentation Scanner

2

169/332



AG 5A

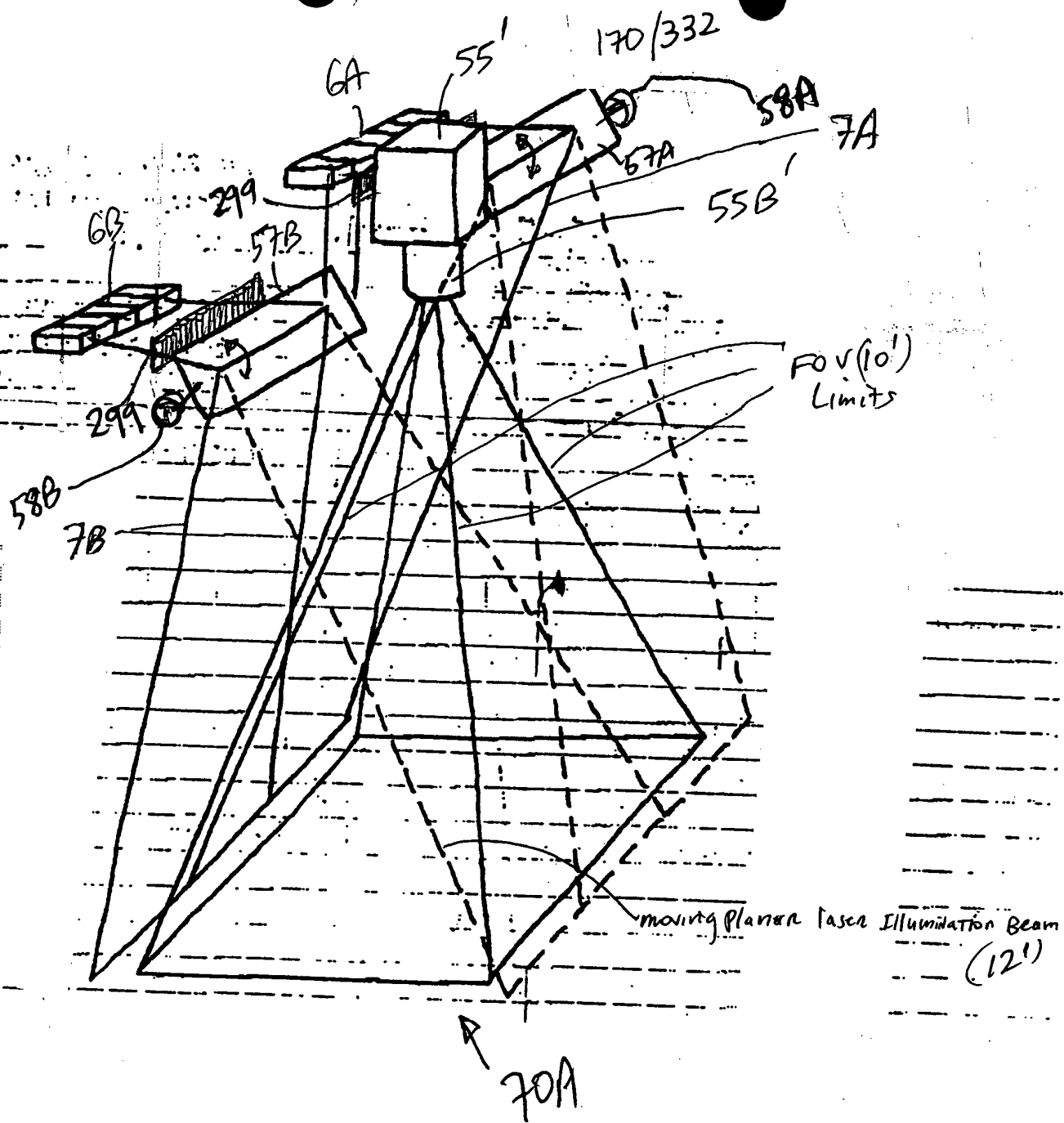


FIG 5B1

100

200001325007

- (1) Fixed focal length camera lens
- (2) Variable focal distance

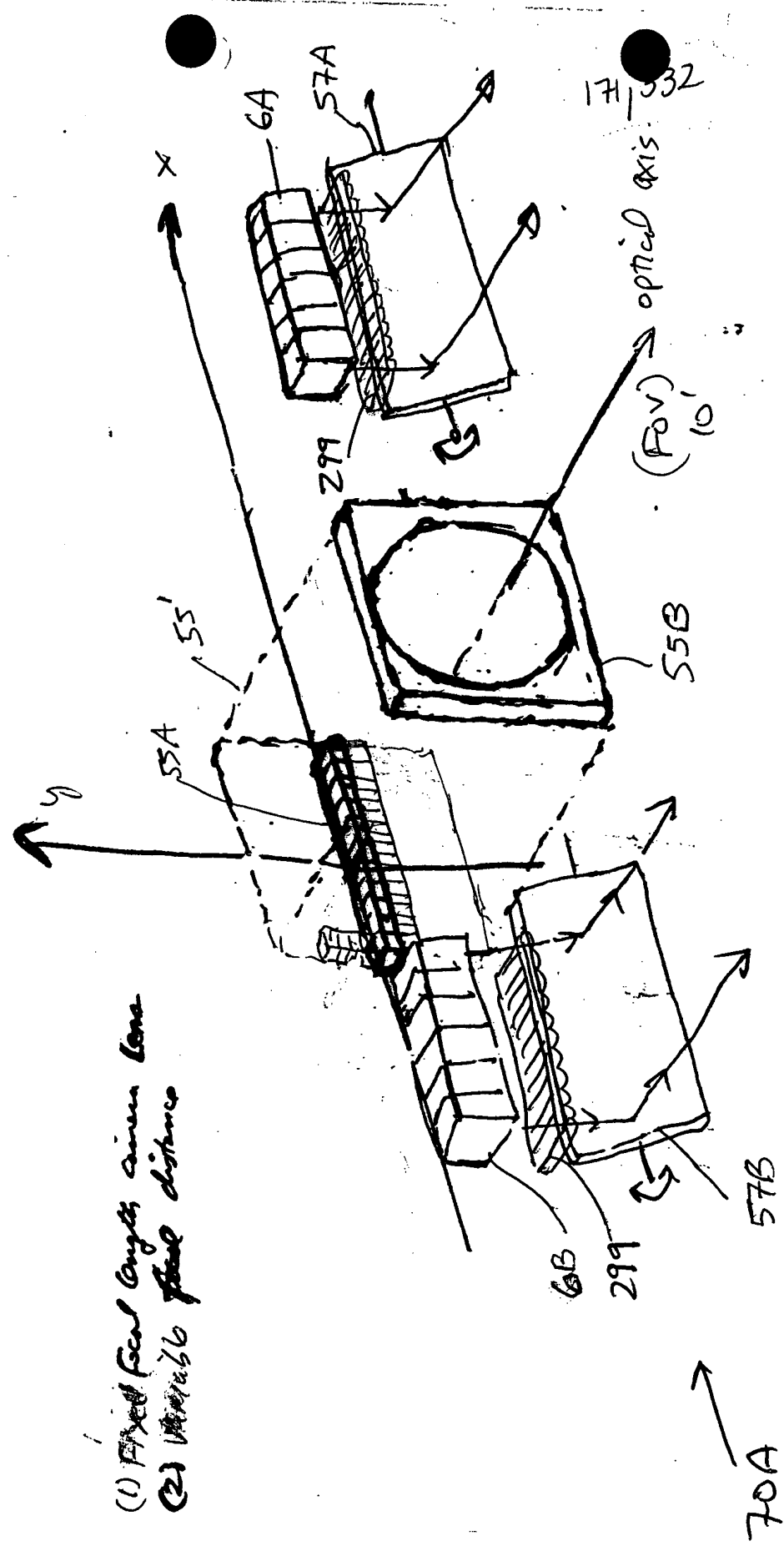


FIG. 5B2



Fig. 5B3

174/332

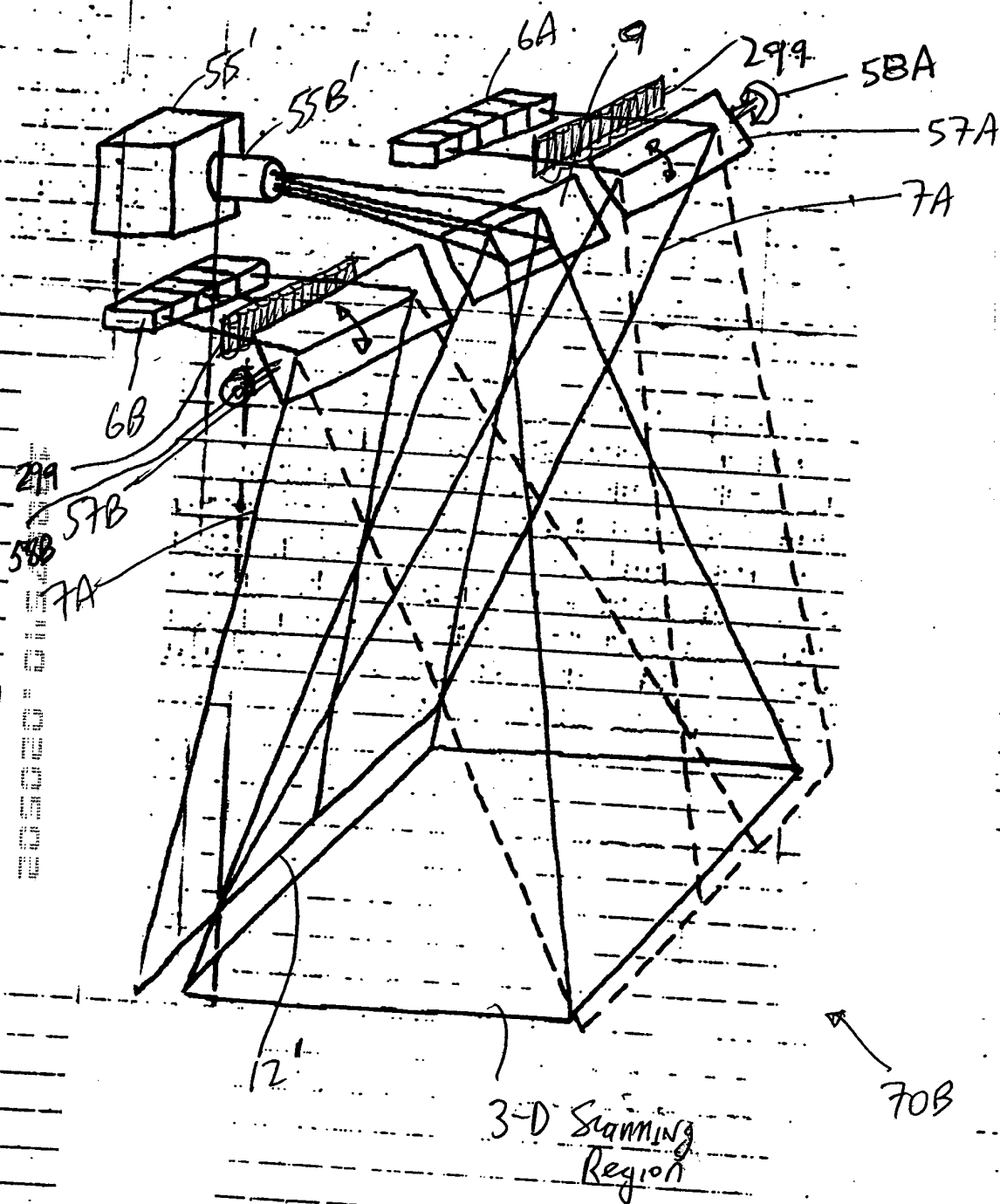


Fig. 5C1

- (1) Variable focal length, convex lens
(2) Fixed focal distance

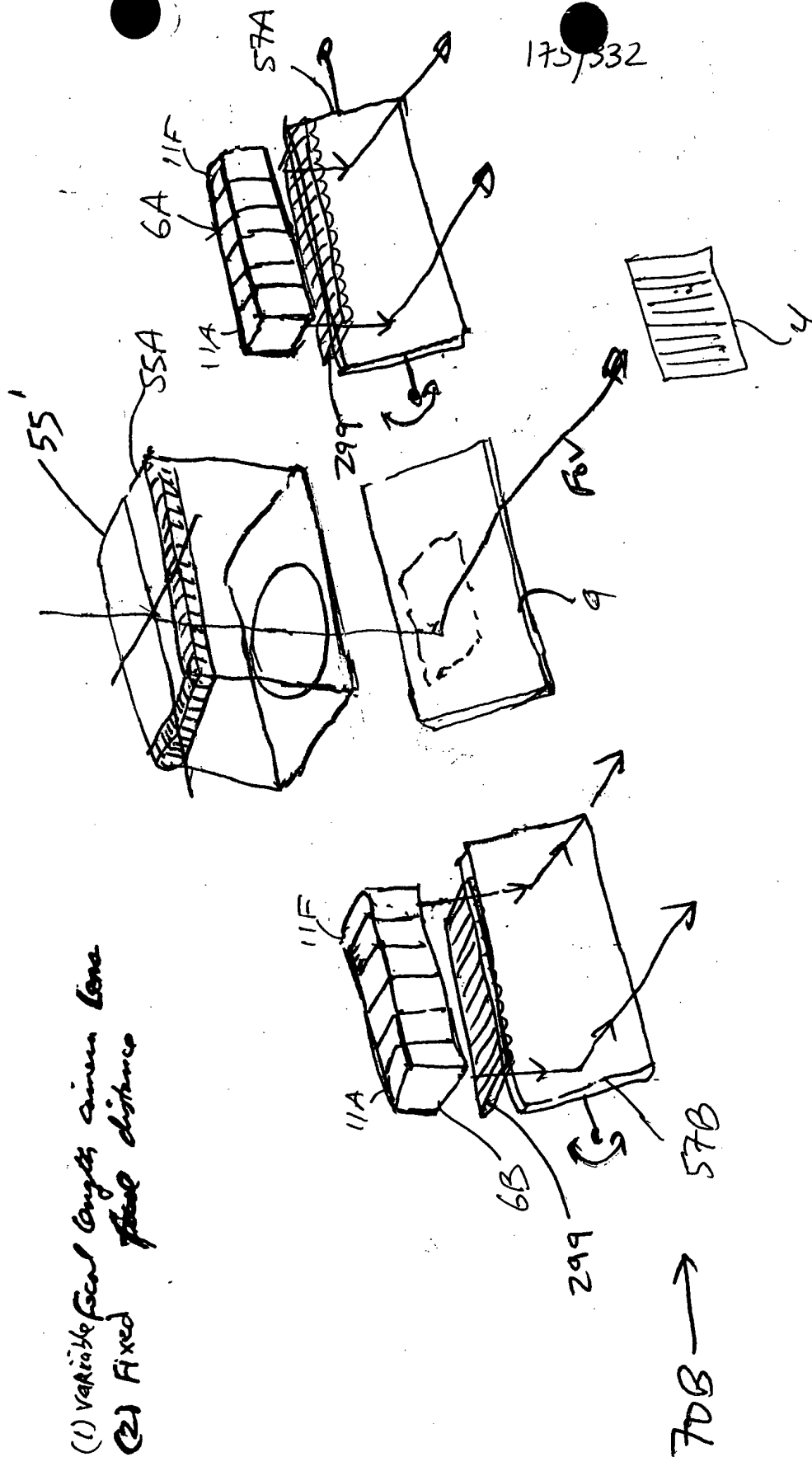


FIG. 5C

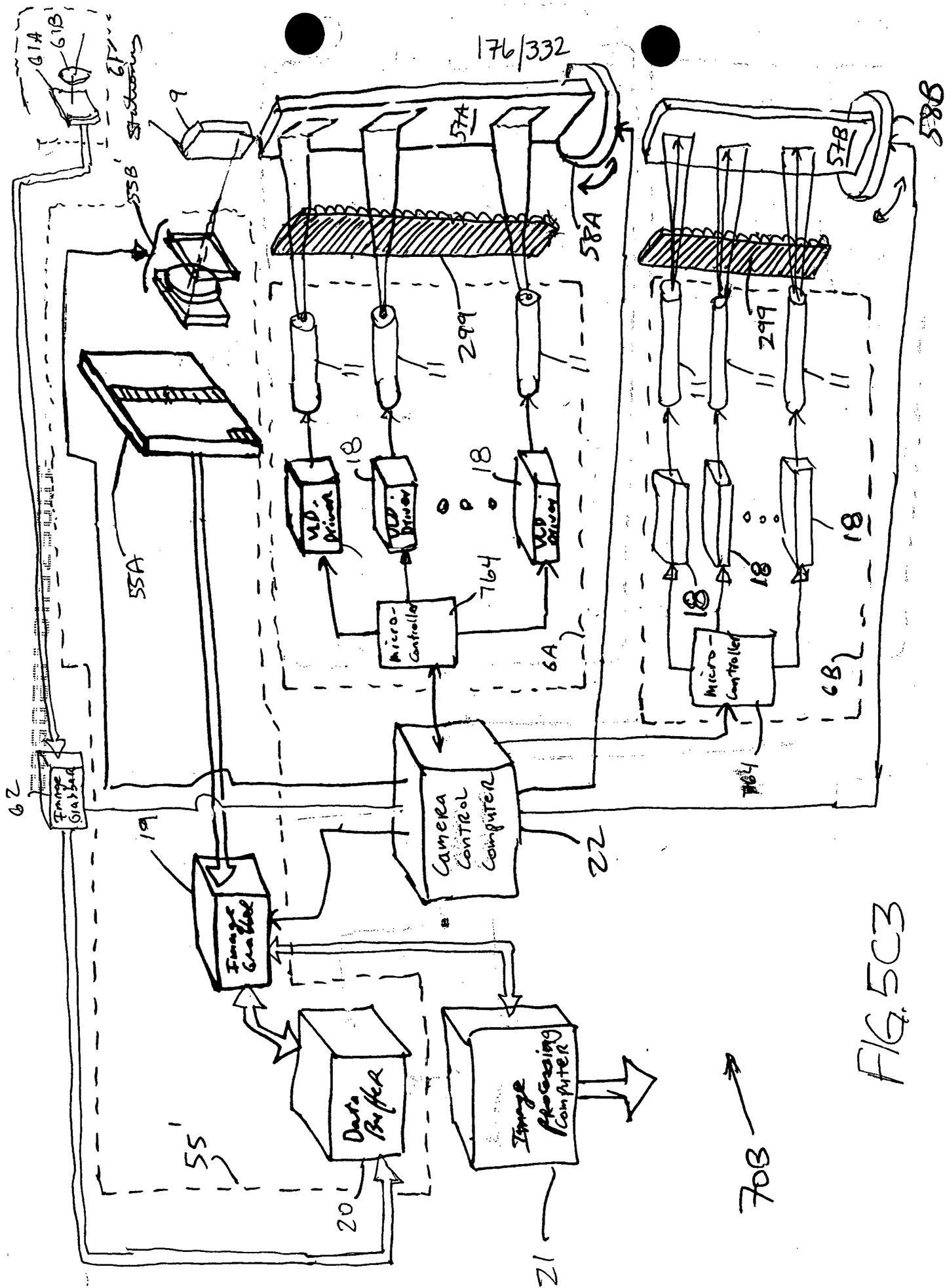


FIG. 5C3

177/392

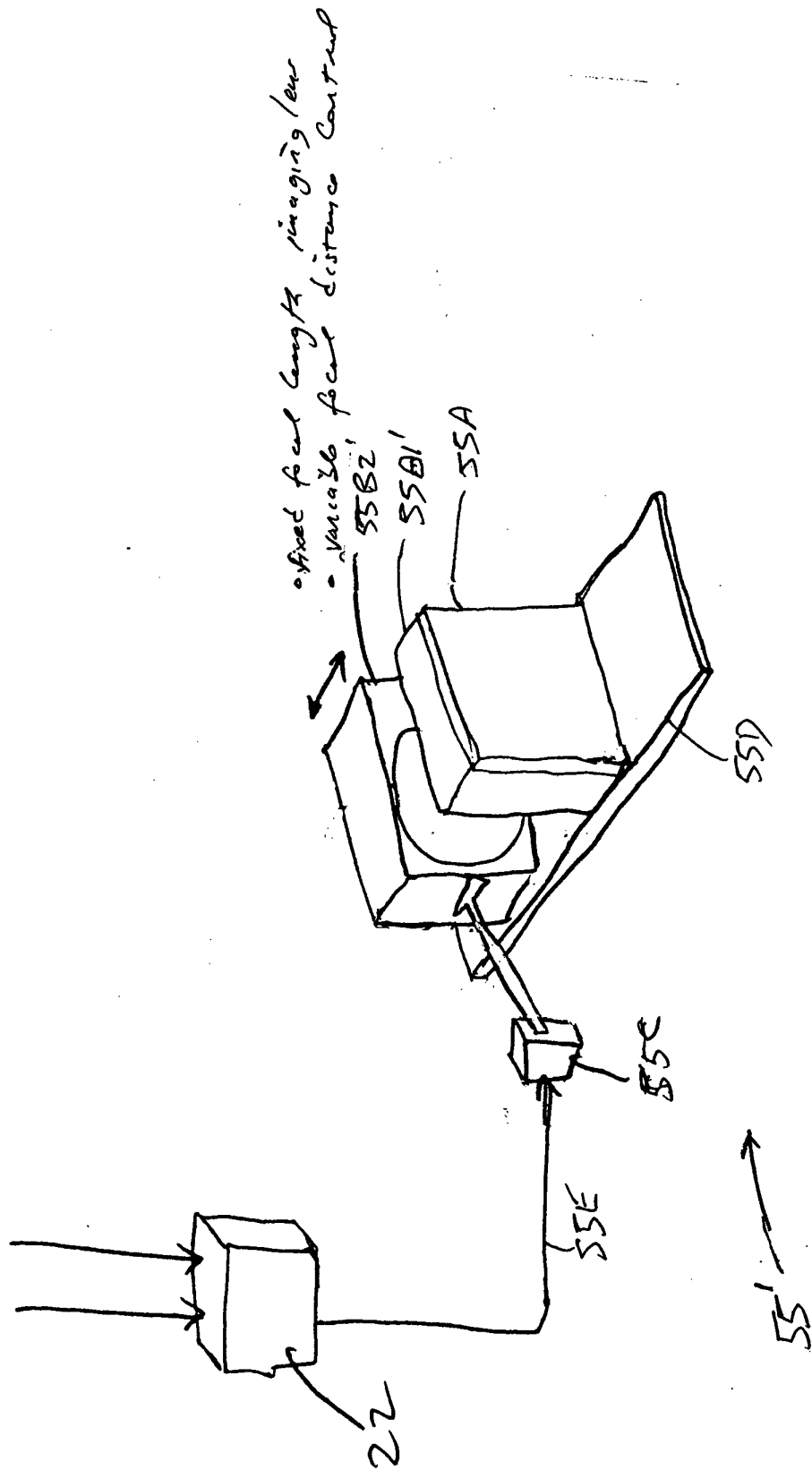


FIG. 5C4

178/332

1003410-0000

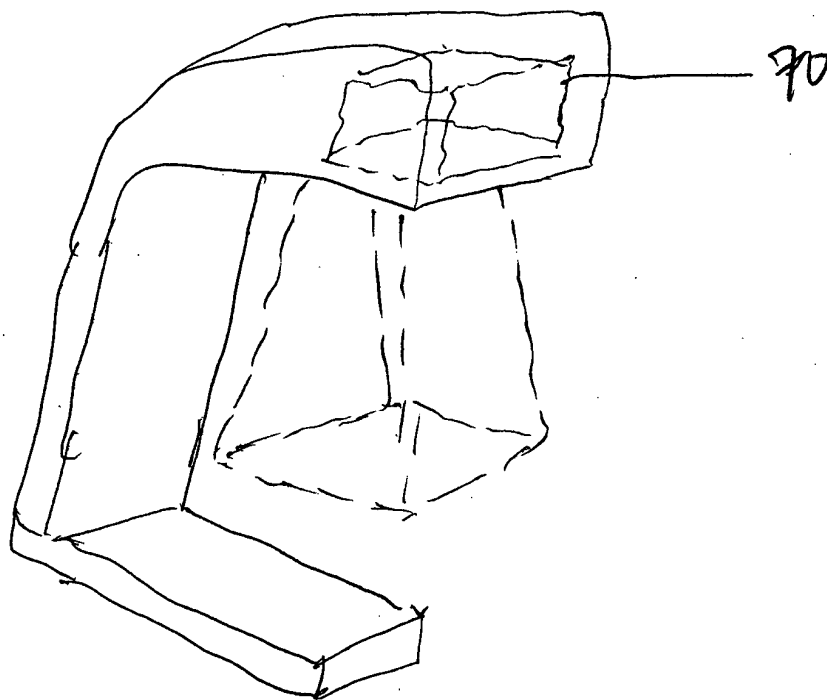
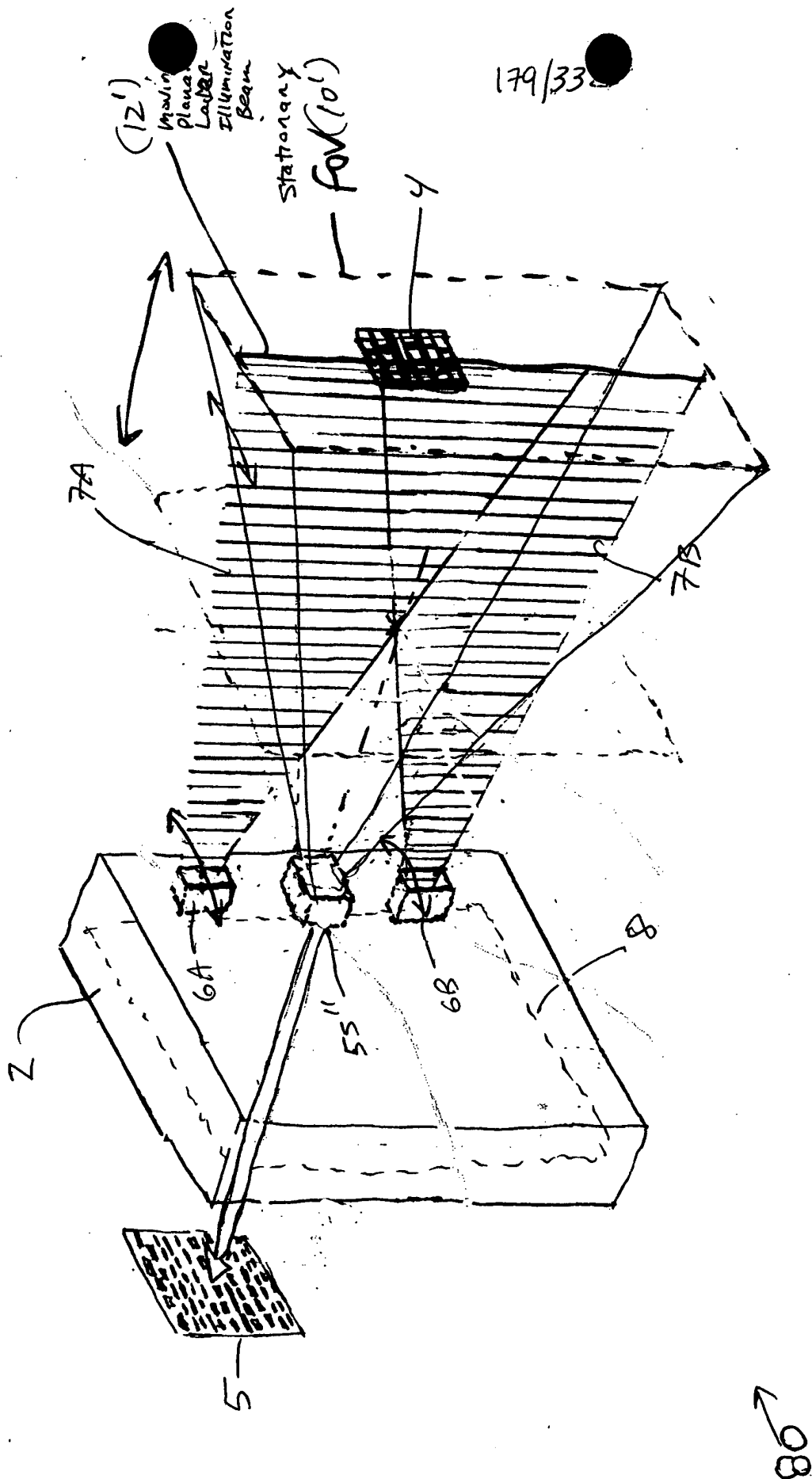


FIG. 5D



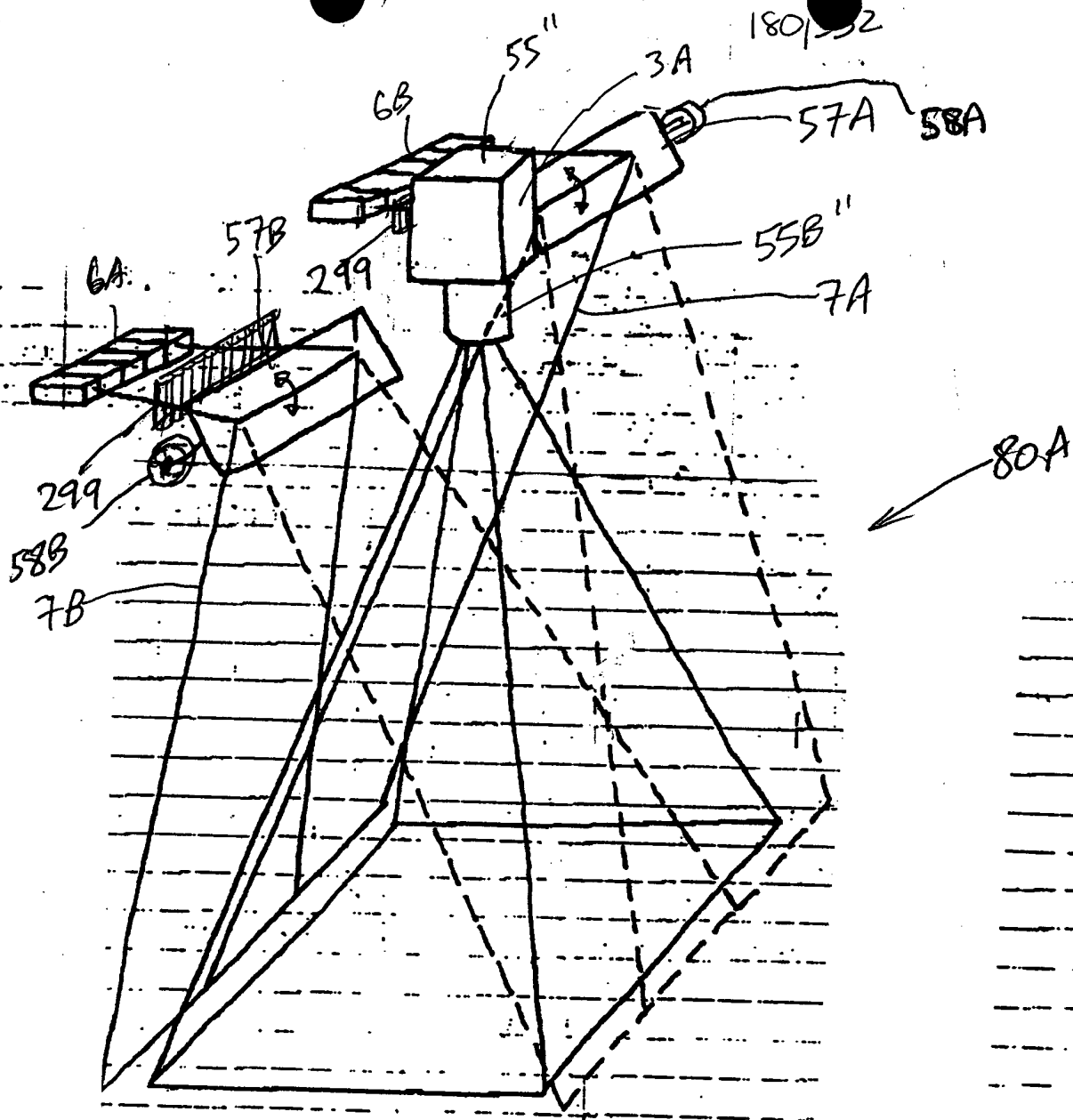


FIG. 6B1

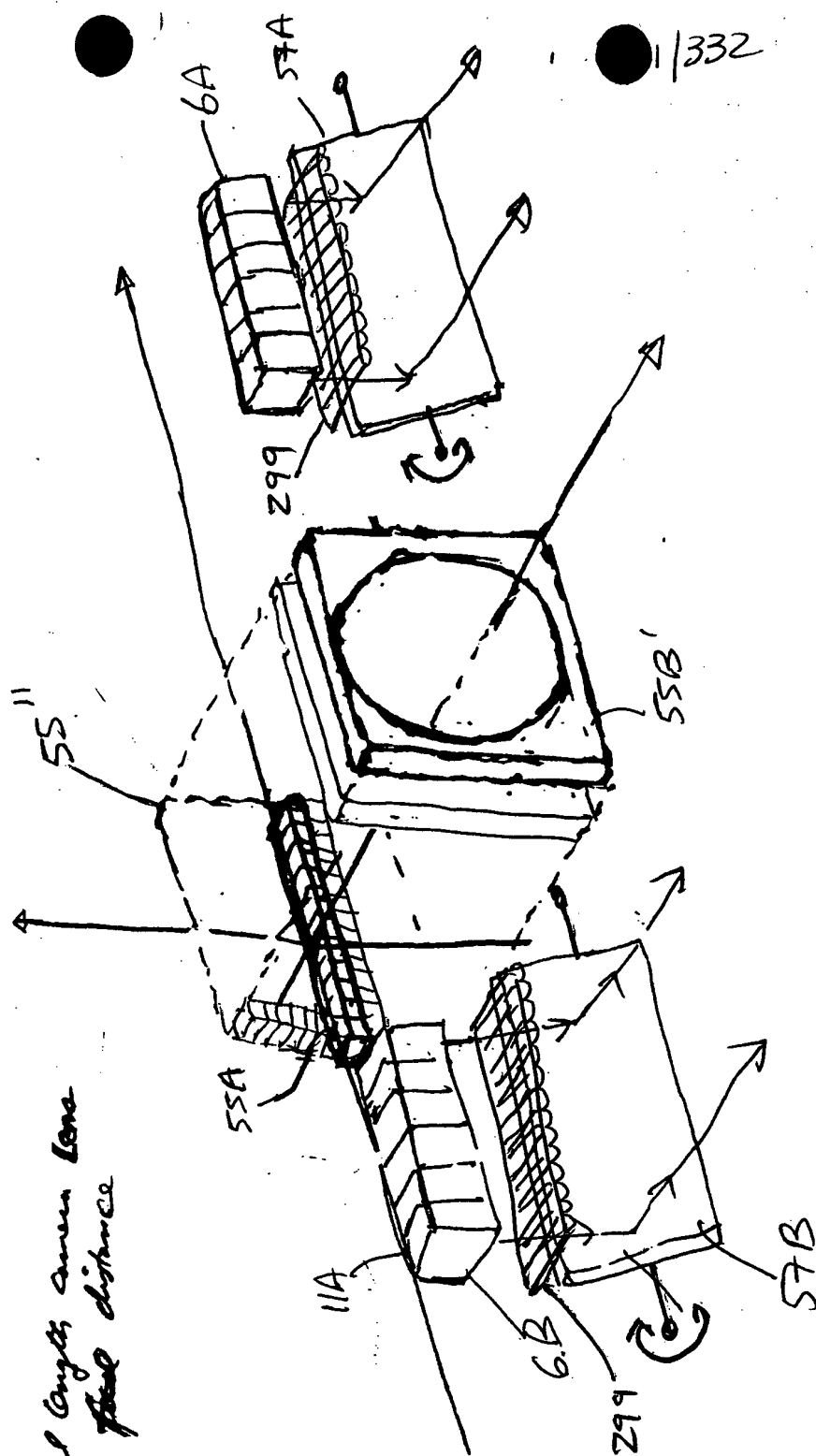


FIG. 6B2

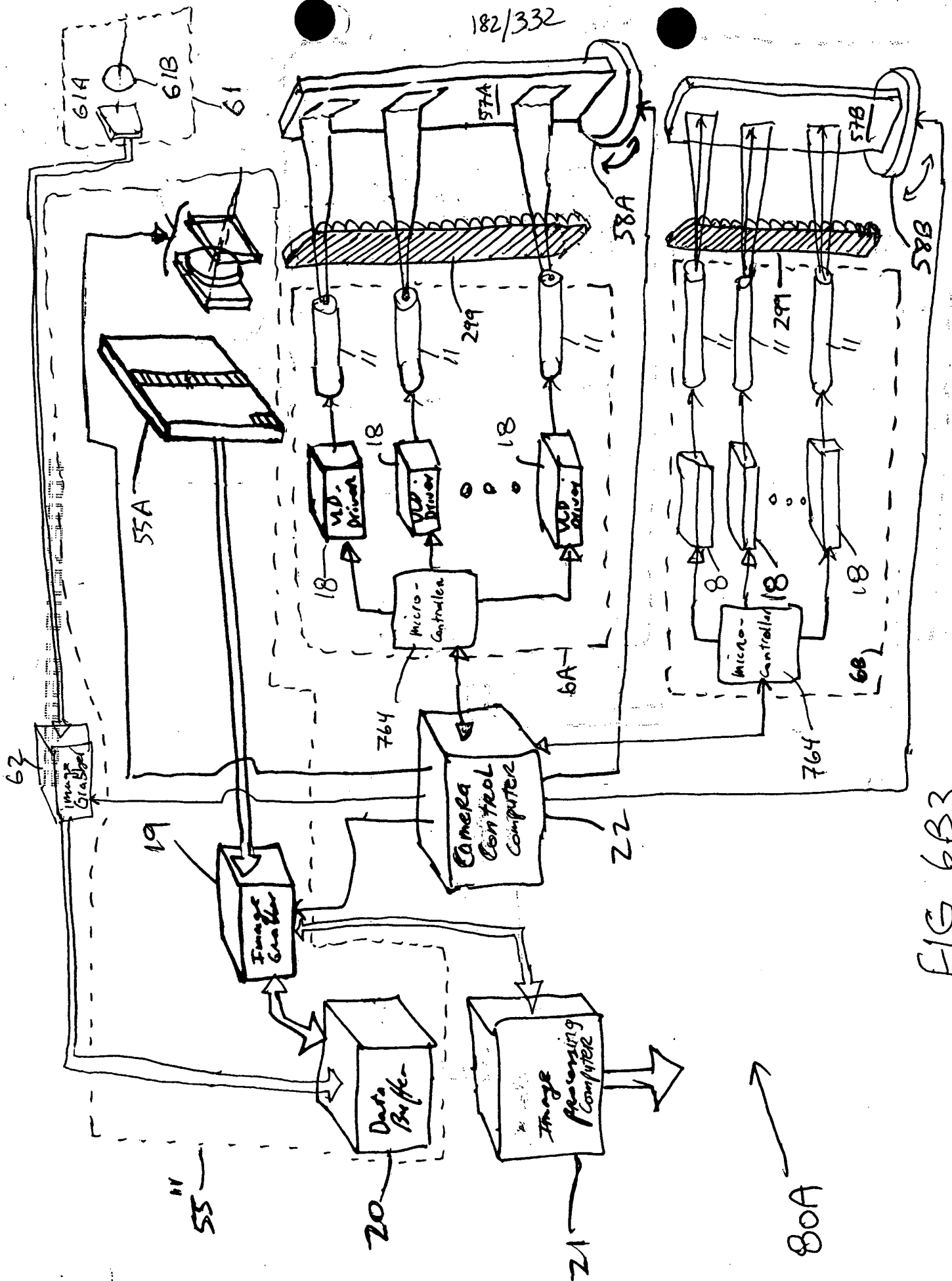


FIG. 6B3

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

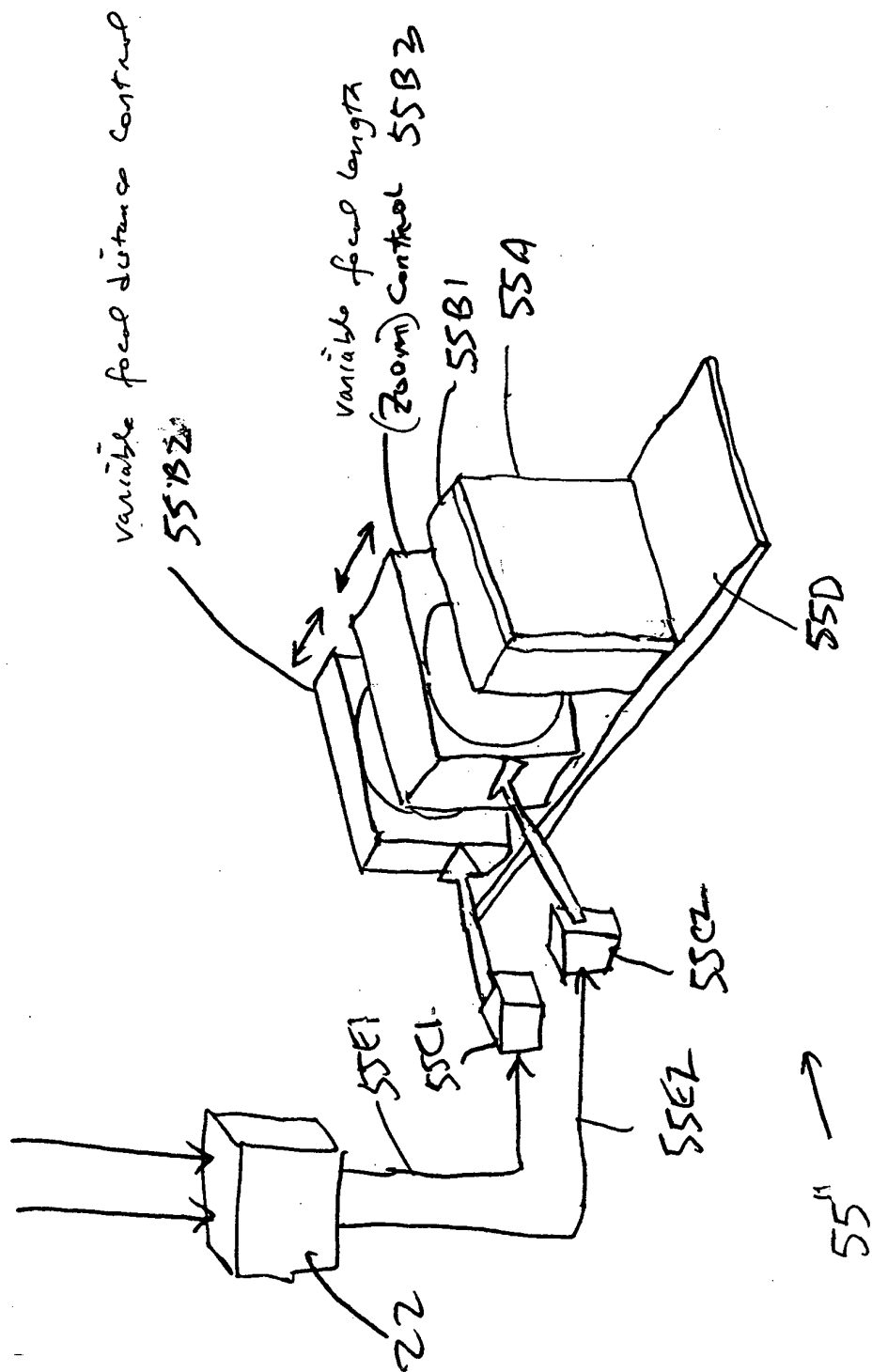


FIG. 6B9

184/332

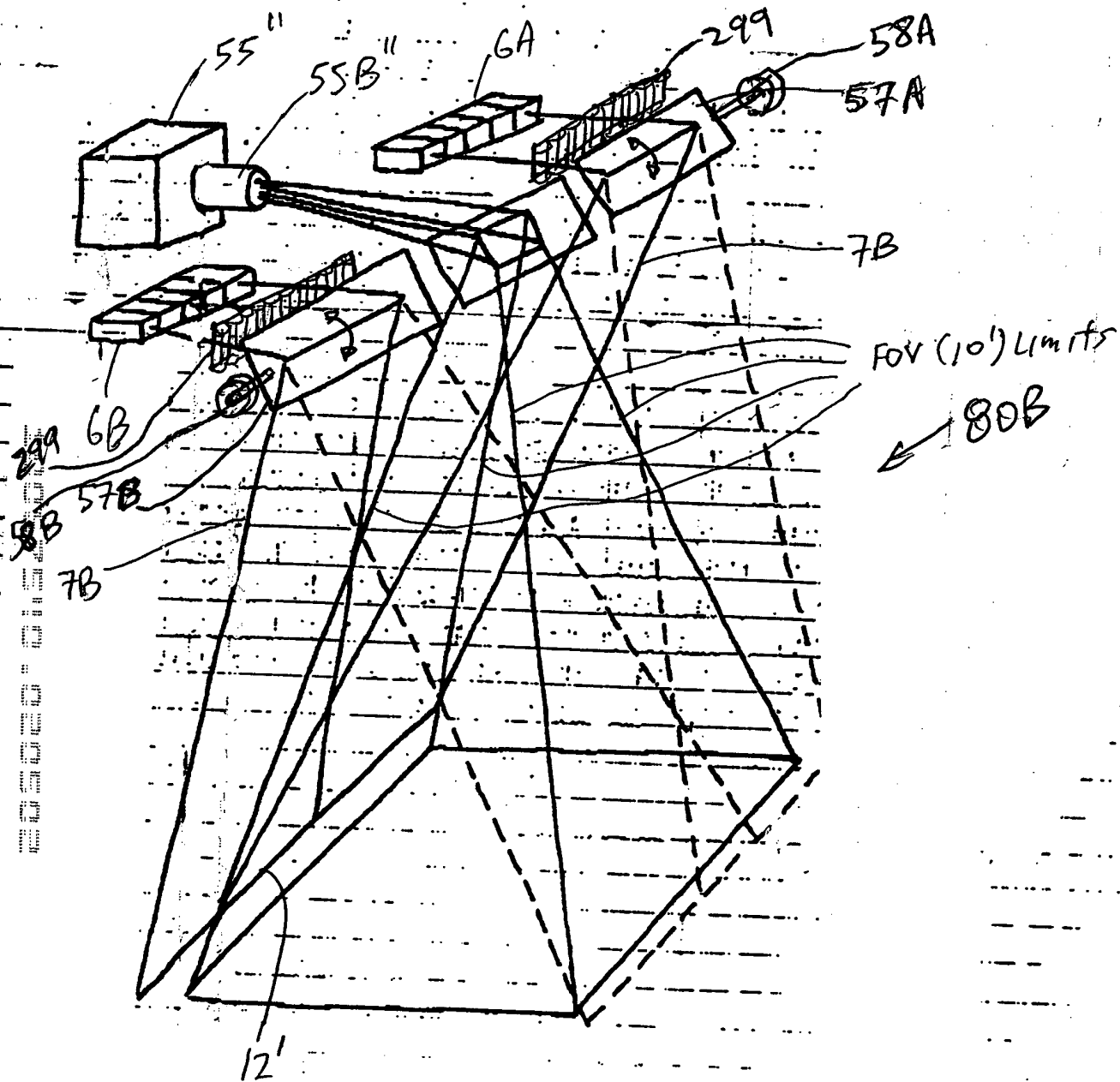


FIG. 6C1

FIG. 6C2

- (1) Variable focal length camera lens
- (2) Variable field distance

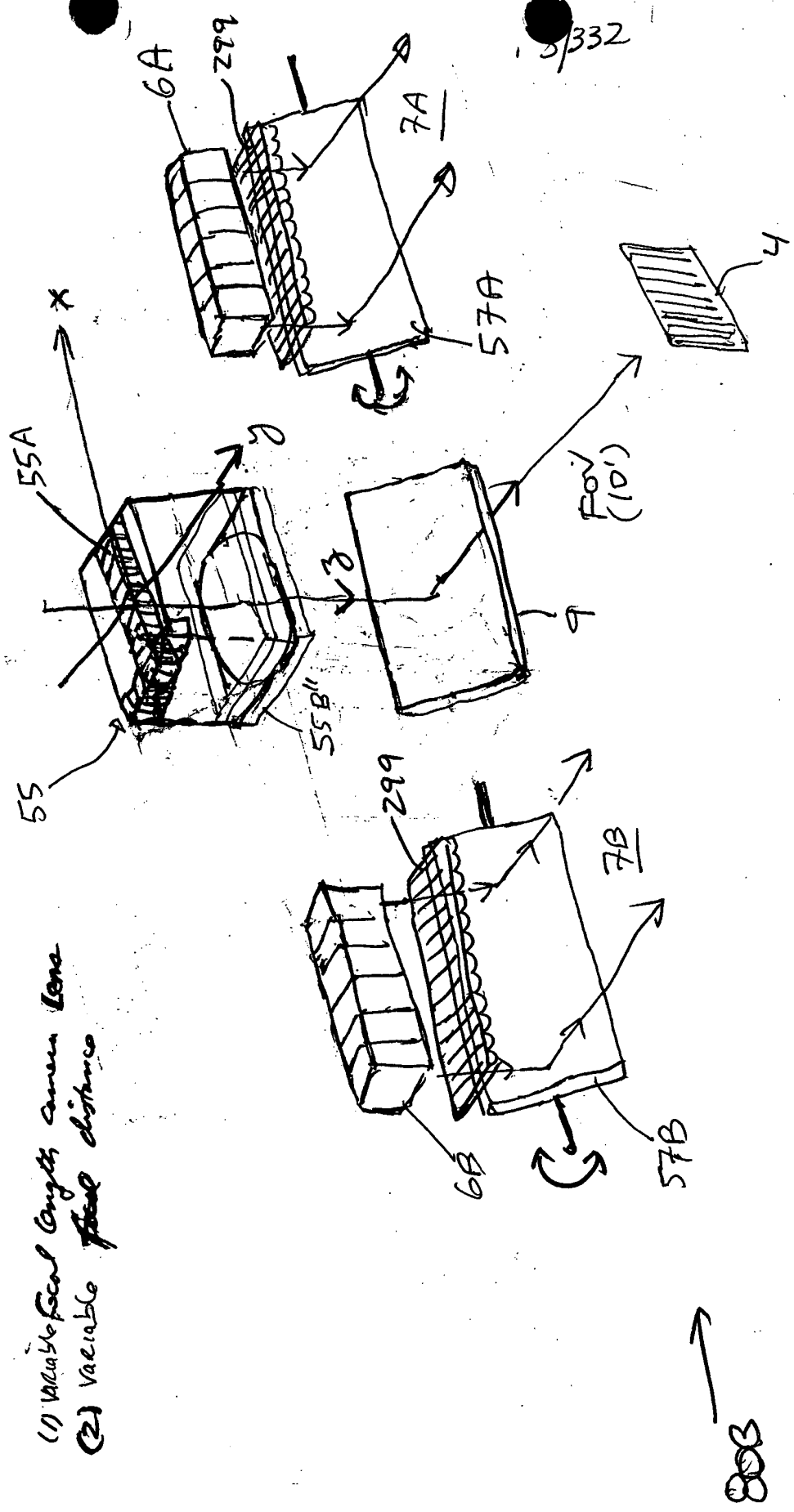


FIG. 6C2

186/332

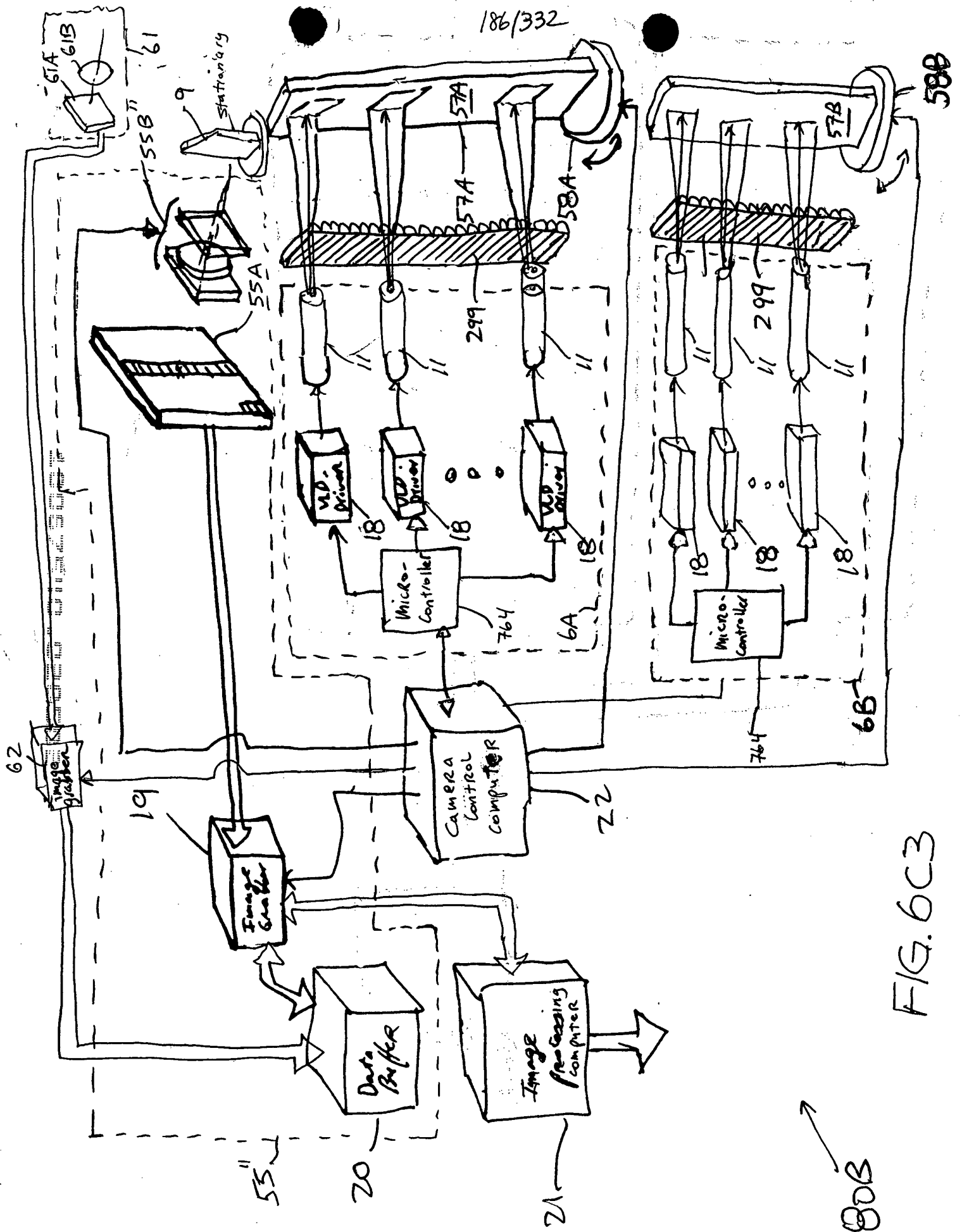


FIG. 6C3

80B

189/332

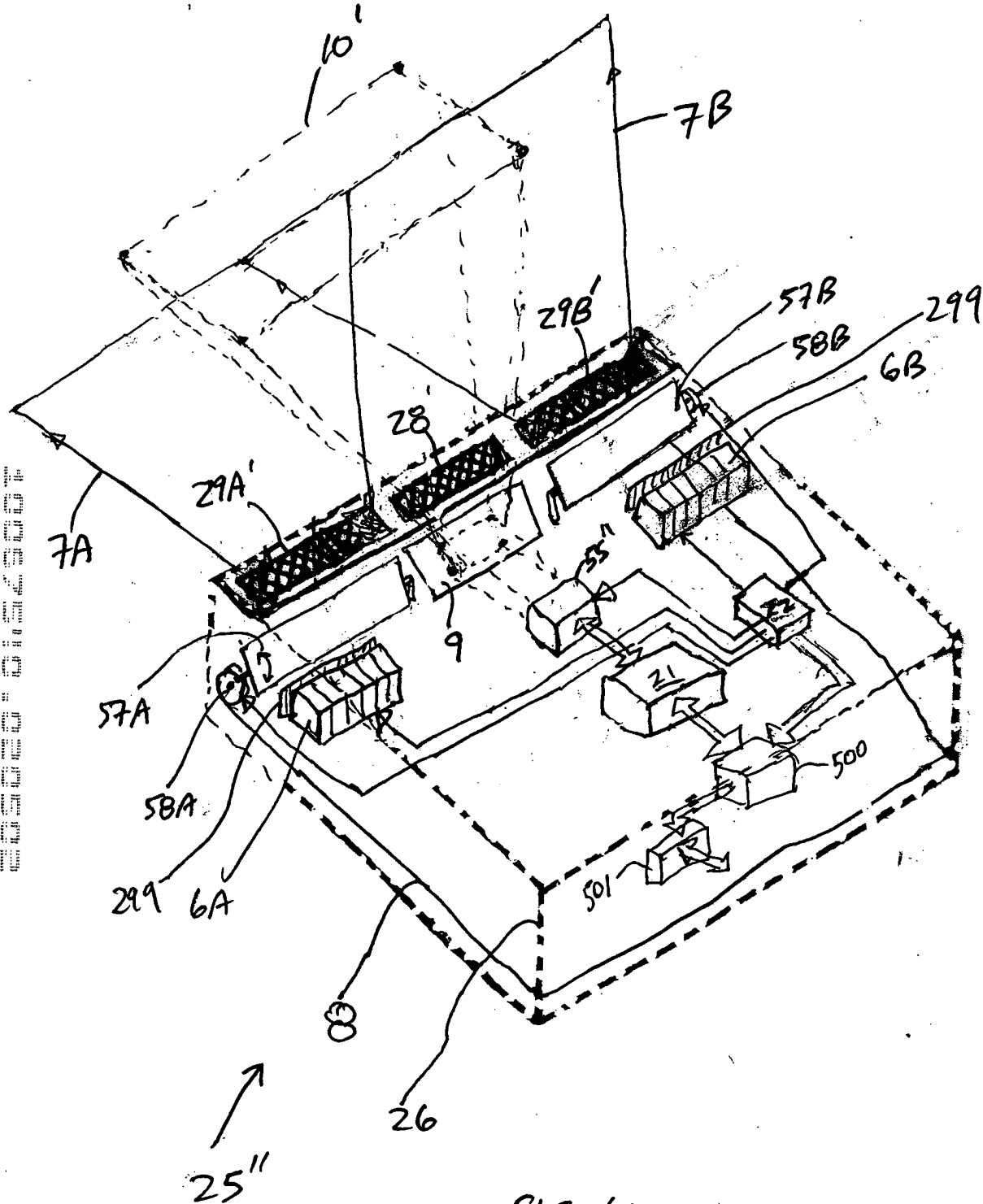
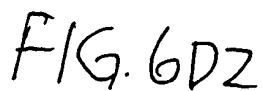


FIG. 6D1

姓名	性别	年龄	籍贯	职业	文化程度	健康状况	婚姻状况	子女情况	其他情况
王德胜	男	45	山东	工人	高中	良好	已婚	2子1女	无
李小红	女	38	河南	教师	大学	良好	已婚	1子1女	无
张国强	男	52	江苏	干部	大学	良好	已婚	2子1女	无
刘小芳	女	41	湖北	工人	初中	良好	已婚	1子1女	无
陈为民	男	35	浙江	医生	大学	良好	已婚	1子1女	无
赵大伟	男	48	广东	商人	高中	良好	已婚	2子1女	无
孙丽娟	女	32	四川	教师	大学	良好	已婚	1子1女	无
周国强	男	55	湖南	工人	初中	良好	已婚	2子1女	无
吴小华	女	43	安徽	干部	大学	良好	已婚	1子1女	无
郑为民	男	37	江西	工人	高中	良好	已婚	1子1女	无
冯大伟	男	49	福建	商人	初中	良好	已婚	2子1女	无
李小红	女	39	广西	教师	大学	良好	已婚	1子1女	无
张国强	男	51	云南	工人	高中	良好	已婚	2子1女	无
刘小芳	女	42	贵州	干部	大学	良好	已婚	1子1女	无
陈为民	男	36	海南	工人	初中	良好	已婚	1子1女	无
赵大伟	男	47	宁夏	商人	高中	良好	已婚	2子1女	无
孙丽娟	女	31	青海	教师	大学	良好	已婚	1子1女	无
周国强	男	54	甘肃	工人	初中	良好	已婚	2子1女	无
吴小华	女	44	陕西	干部	大学	良好	已婚	1子1女	无
郑为民	男	38	山西	工人	高中	良好	已婚	1子1女	无
冯大伟	男	50	内蒙古	商人	初中	良好	已婚	2子1女	无
李小红	女	40	吉林	教师	大学	良好	已婚	1子1女	无
张国强	男	53	黑龙江	工人	高中	良好	已婚	2子1女	无
刘小芳	女	43	辽宁	干部	大学	良好	已婚	1子1女	无
陈为民	男	39	河北	工人	初中	良好	已婚	1子1女	无
赵大伟	男	46	山东	商人	高中	良好	已婚	2子1女	无
孙丽娟	女	30	河南	教师	大学	良好	已婚	1子1女	无
周国强	男	56	湖北	工人	初中	良好	已婚	2子1女	无
吴小华	女	45	浙江	干部	大学	良好	已婚	1子1女	无
郑为民	男	40	江西	工人	高中	良好	已婚	1子1女	无
冯大伟	男	52	福建	商人	初中	良好	已婚	2子1女	无
李小红	女	41	广西	教师	大学	良好	已婚	1子1女	无
张国强	男	54	云南	工人	高中	良好	已婚	2子1女	无
刘小芳	女	44	贵州	干部	大学	良好	已婚	1子1女	无
陈为民	男	40	海南	工人	初中	良好	已婚	1子1女	无
赵大伟	男	48	宁夏	商人	高中	良好	已婚	2子1女	无
孙丽娟	女	32	青海	教师	大学	良好	已婚	1子1女	无
周国强	男	57	甘肃	工人	初中	良好	已婚	2子1女	无
吴小华	女	46	陕西	干部	大学	良好	已婚	1子1女	无
郑为民	男	41	山西	工人	高中	良好	已婚	1子1女	无
冯大伟	男	53	内蒙古	商人	初中	良好	已婚	2子1女	无
李小红	女	42	吉林	教师	大学	良好	已婚	1子1女	无
张国强	男	55	黑龙江	工人	高中	良好	已婚	2子1女	无
刘小芳	女	45	辽宁	干部	大学	良好	已婚	1子1女	无
陈为民	男	41	河北	工人	初中	良好	已婚	1子1女	无
赵大伟	男	49	山东	商人	高中	良好	已婚	2子1女	无
孙丽娟	女	33	河南	教师	大学	良好	已婚	1子1女	无
周国强	男	58	湖北	工人	初中	良好	已婚	2子1女	无
吴小华	女	47	浙江	干部					



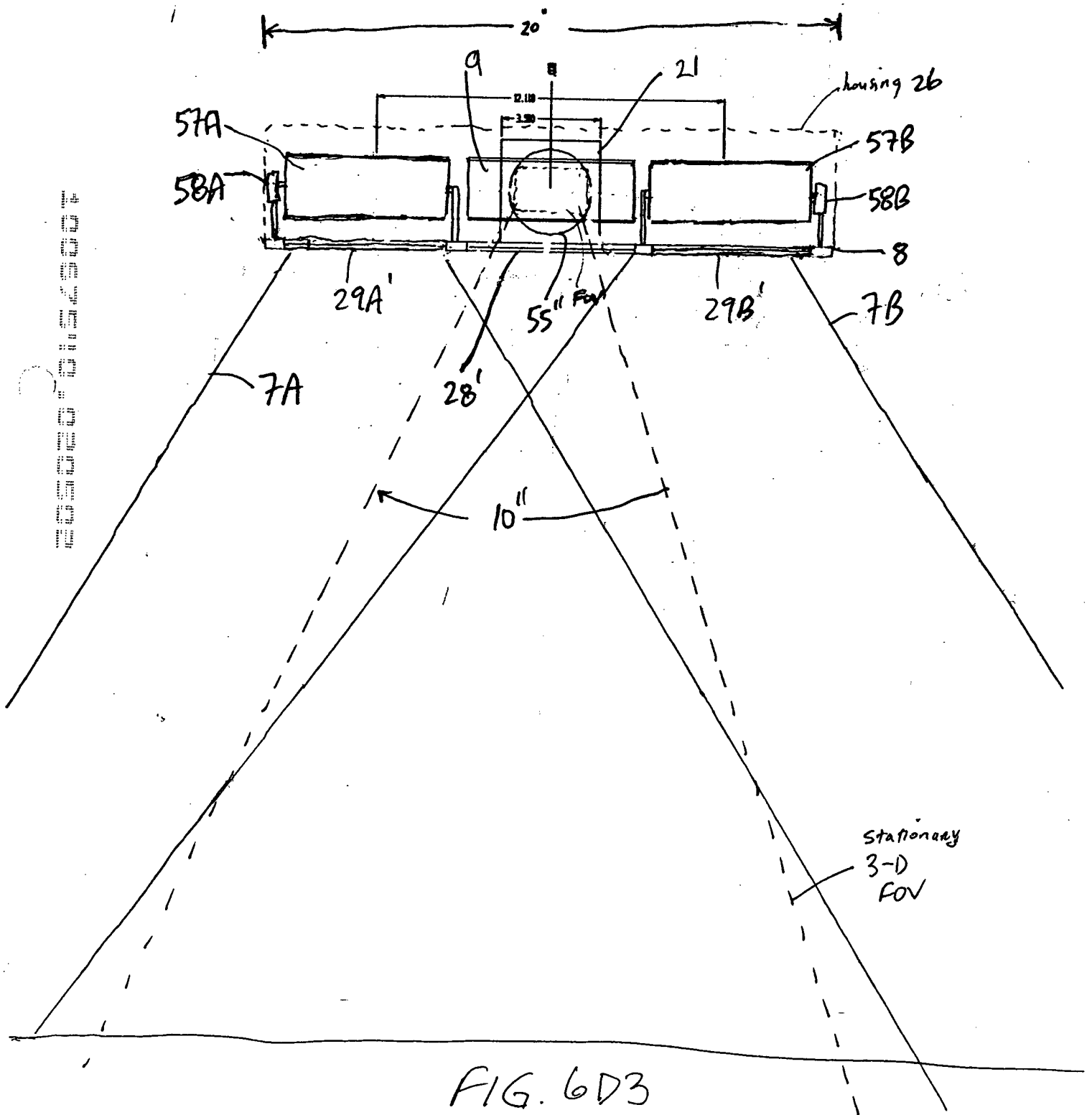


FIG. 6D3

192/332

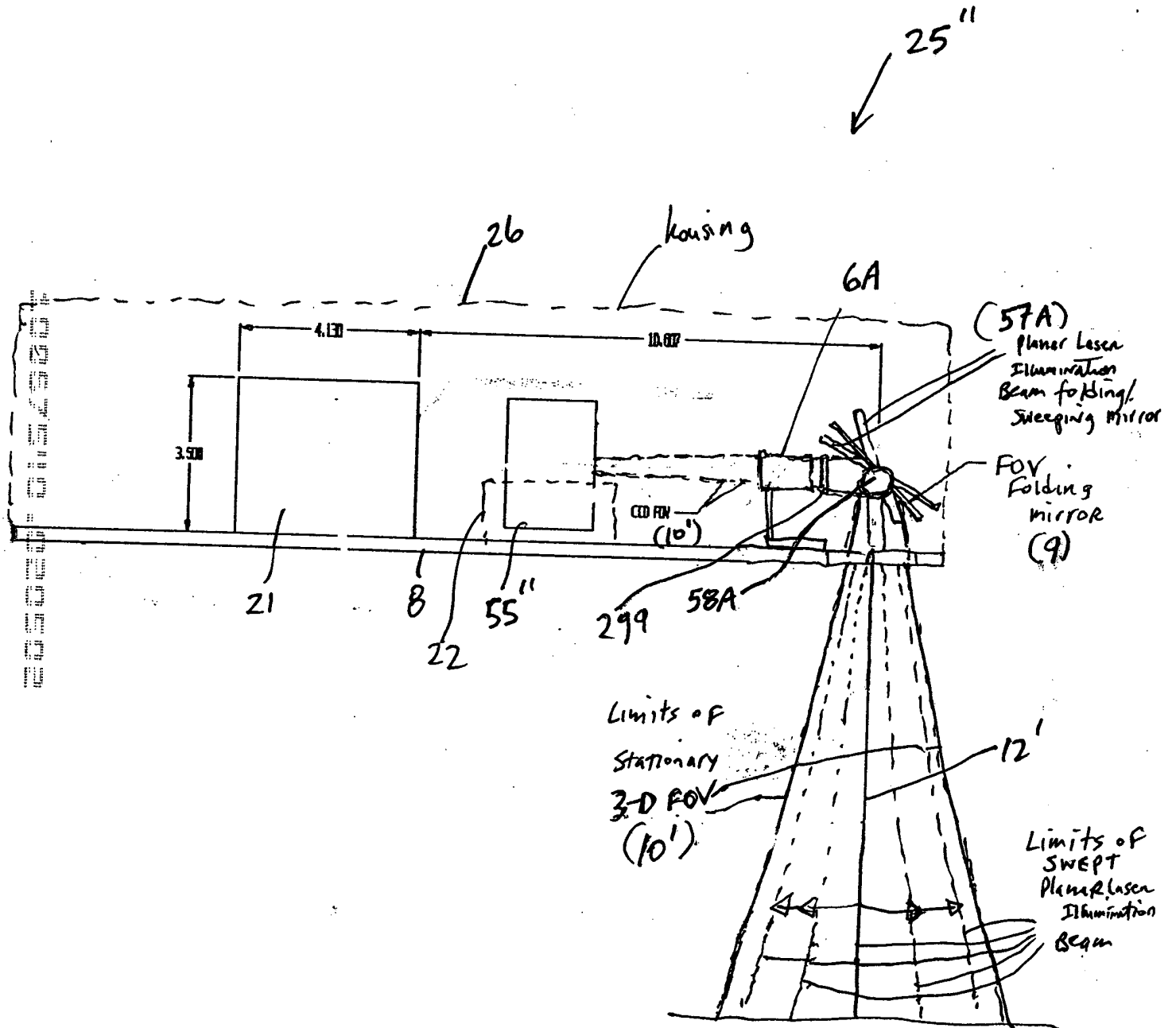


FIG. 6D4

193/332

variable FOV

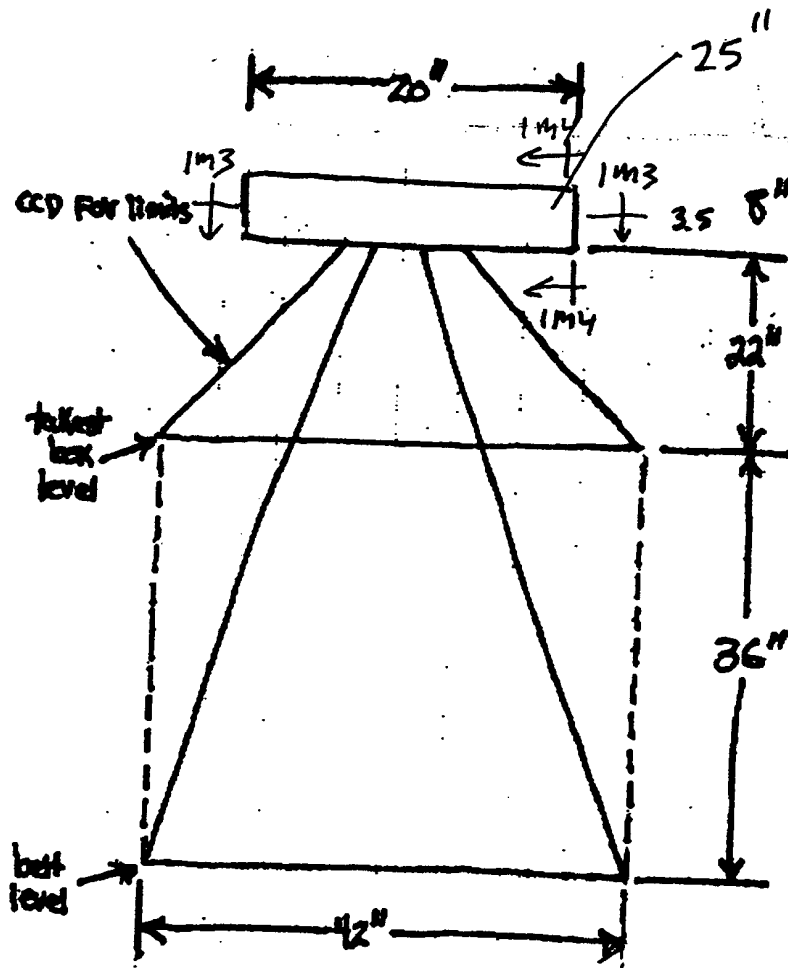


FIG. 6D5

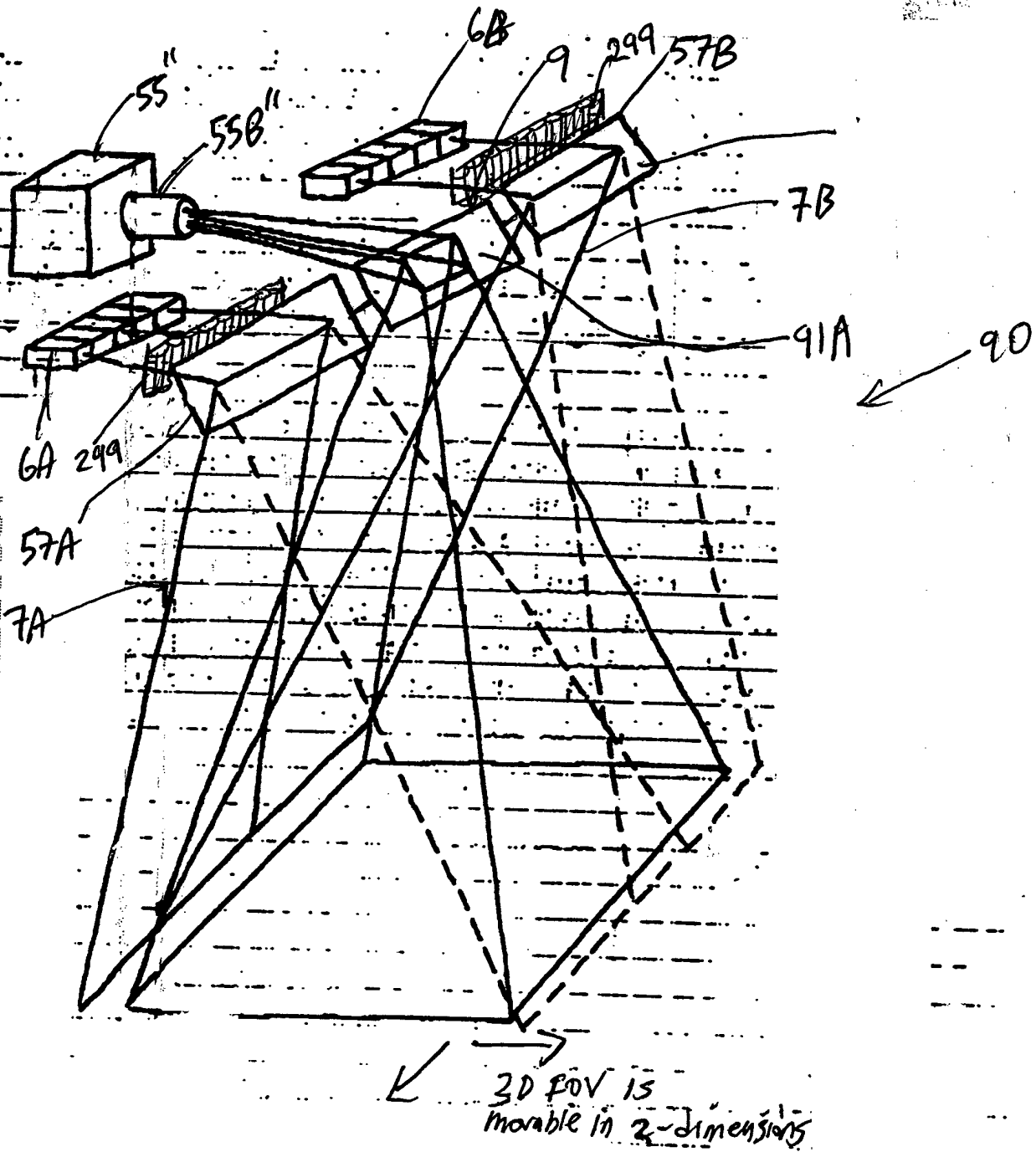


FIG 6E1

[illegible]

1951032

196/332

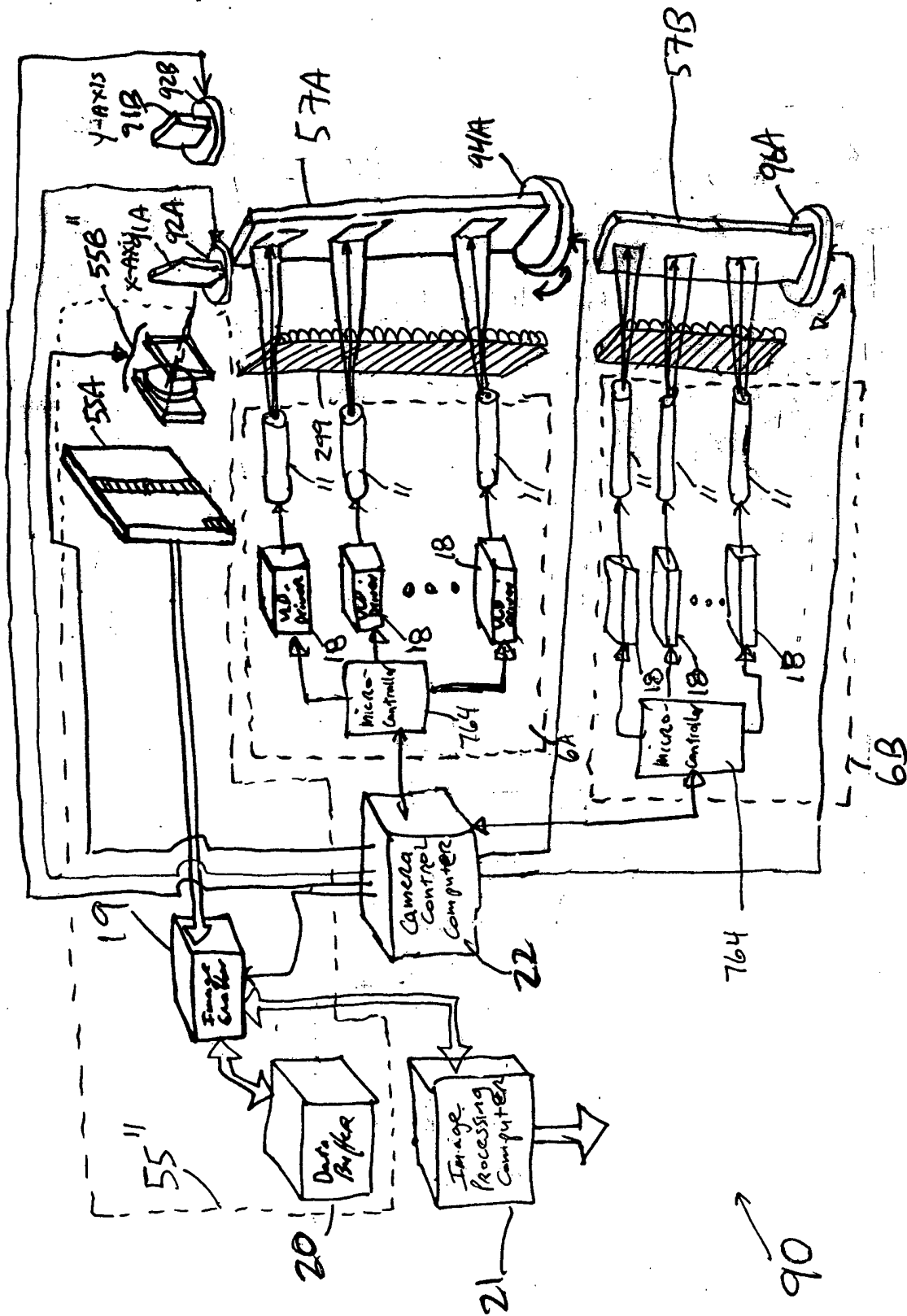


FIG. 6E3

197/332

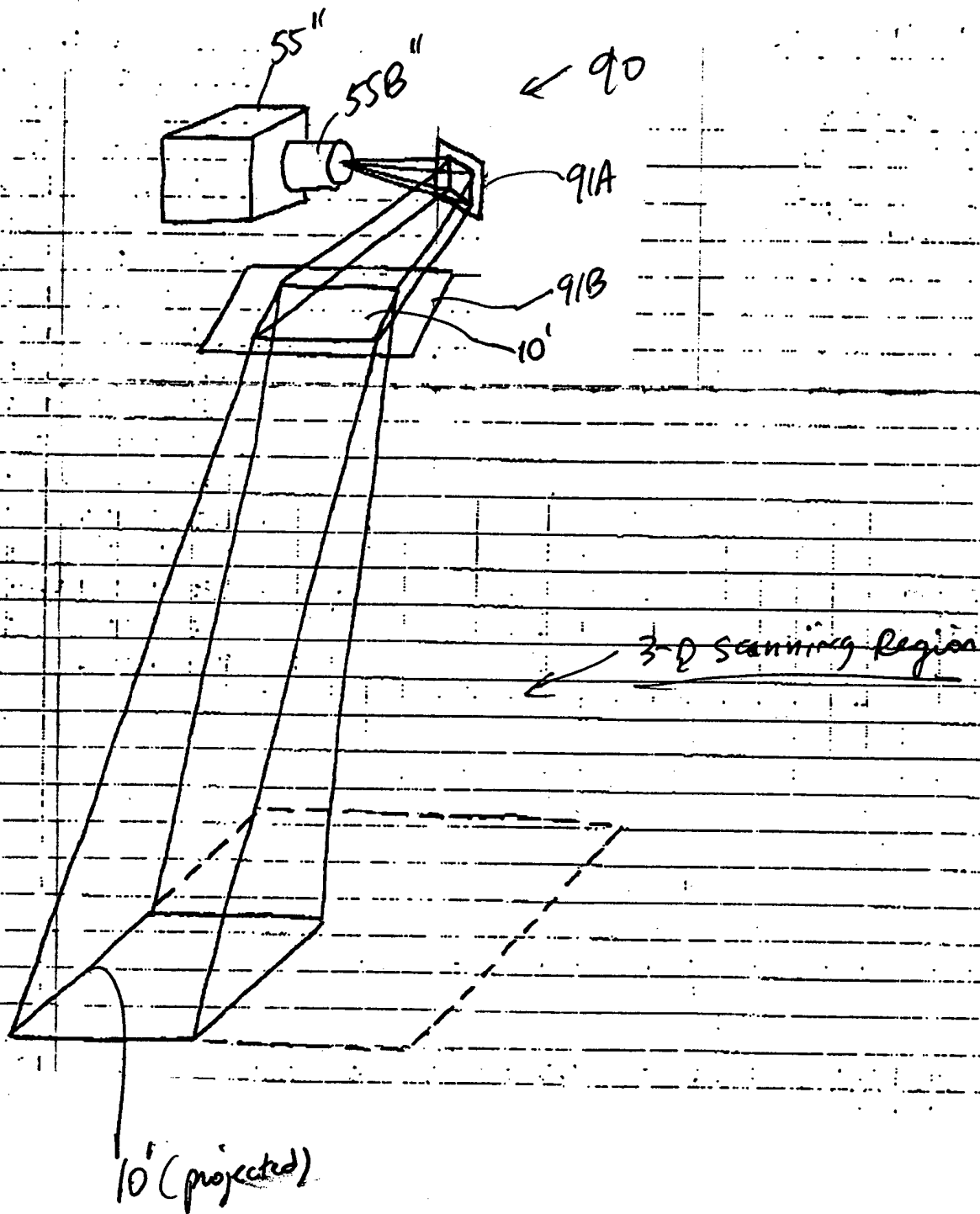
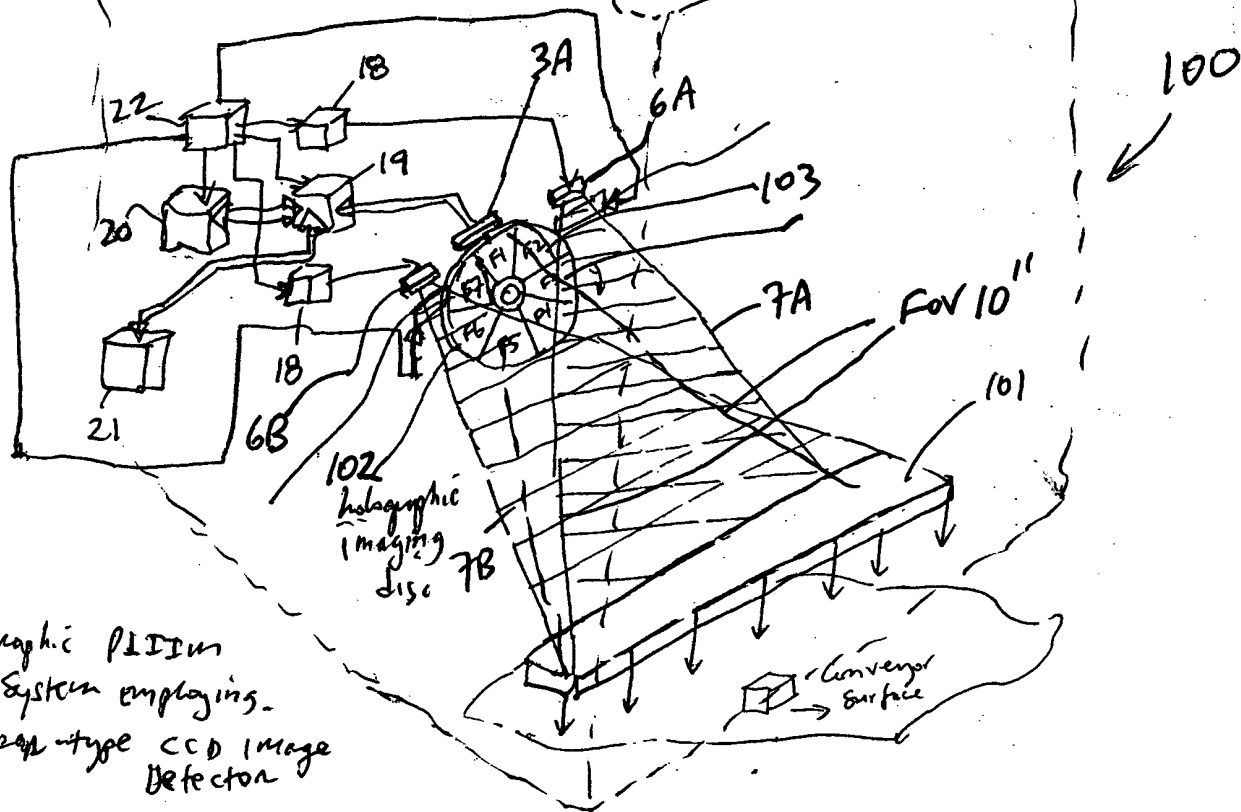
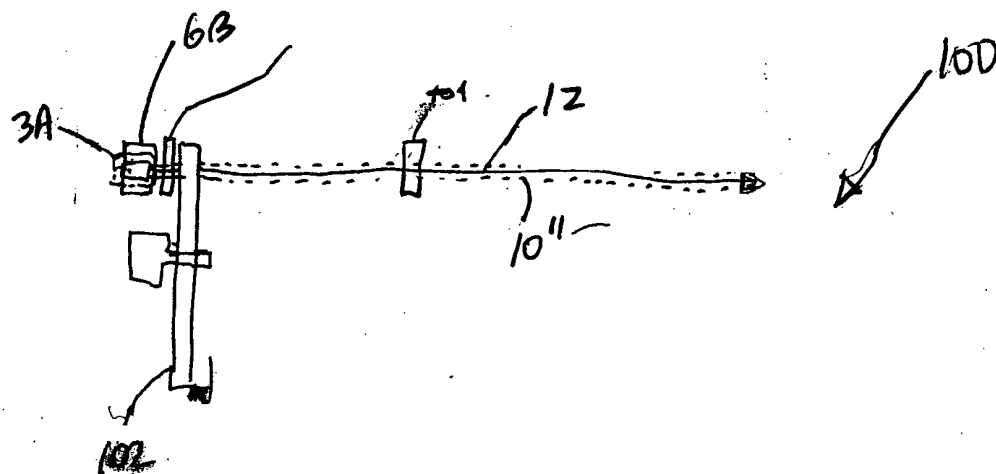


FIG. 6E4

198/332



Holographic PIIIM
System employing
Linear-type CCD Image
Detector



199/332

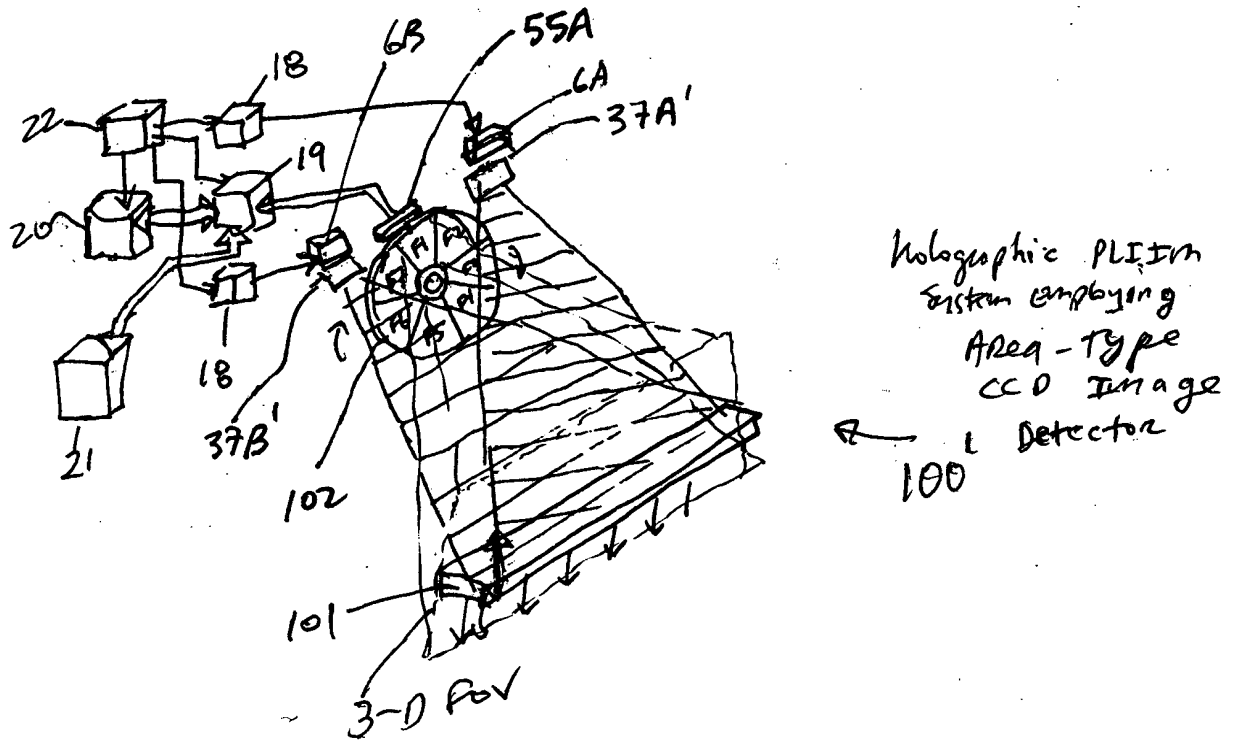


FIG. 8A

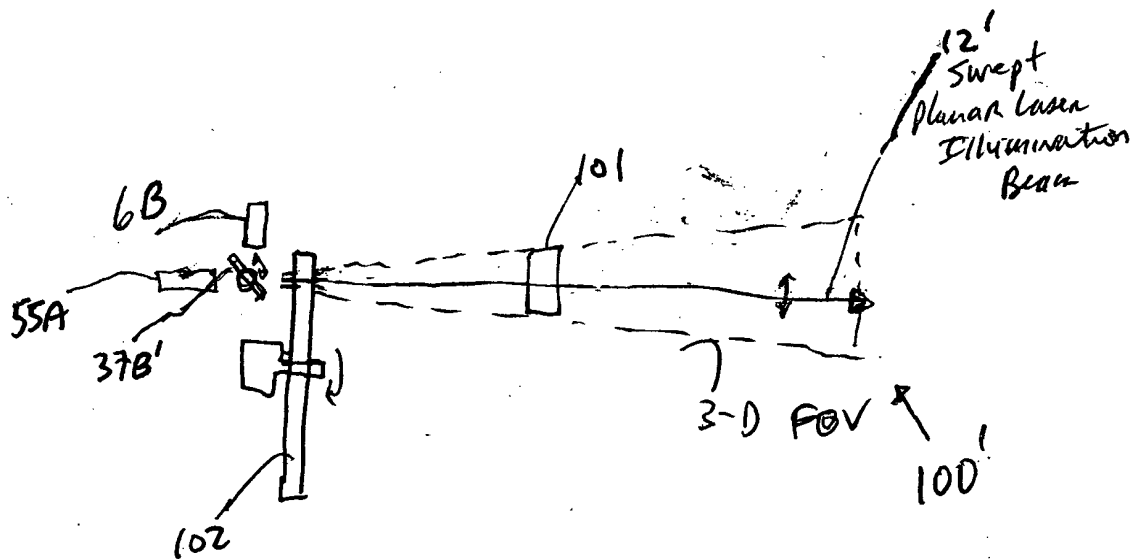


FIG. 8B

1-D CCD SCANNER EMBODIMENT

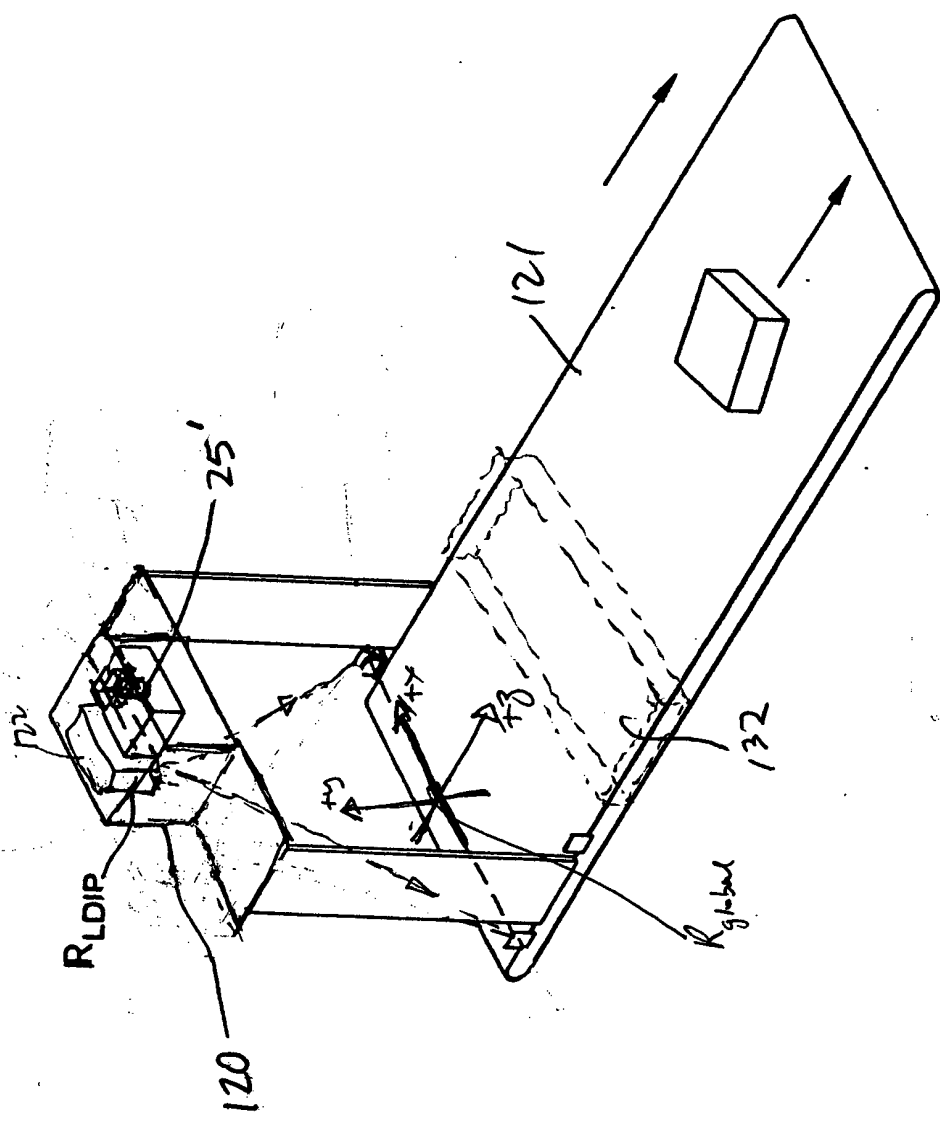
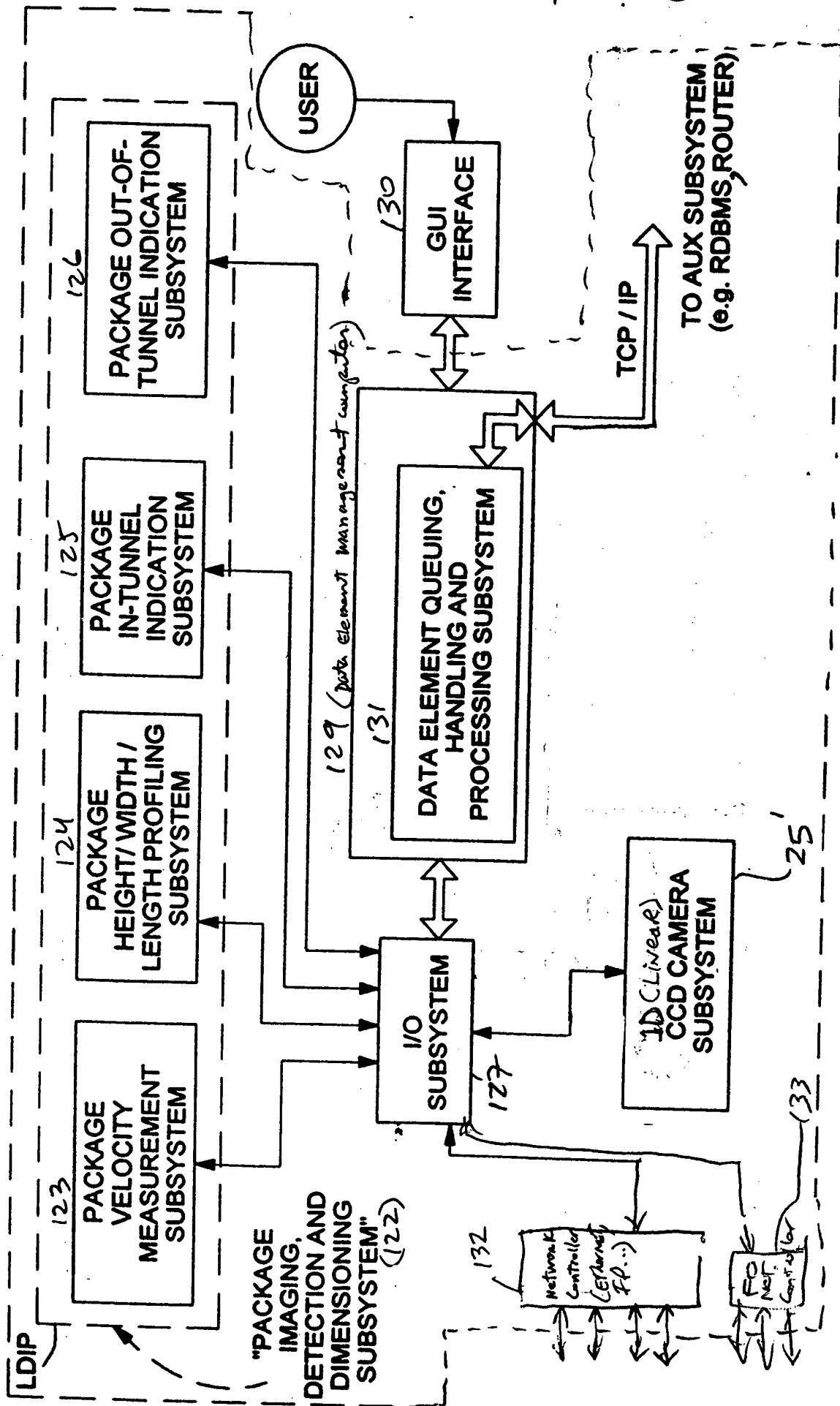


FIG. 9



021

202/332

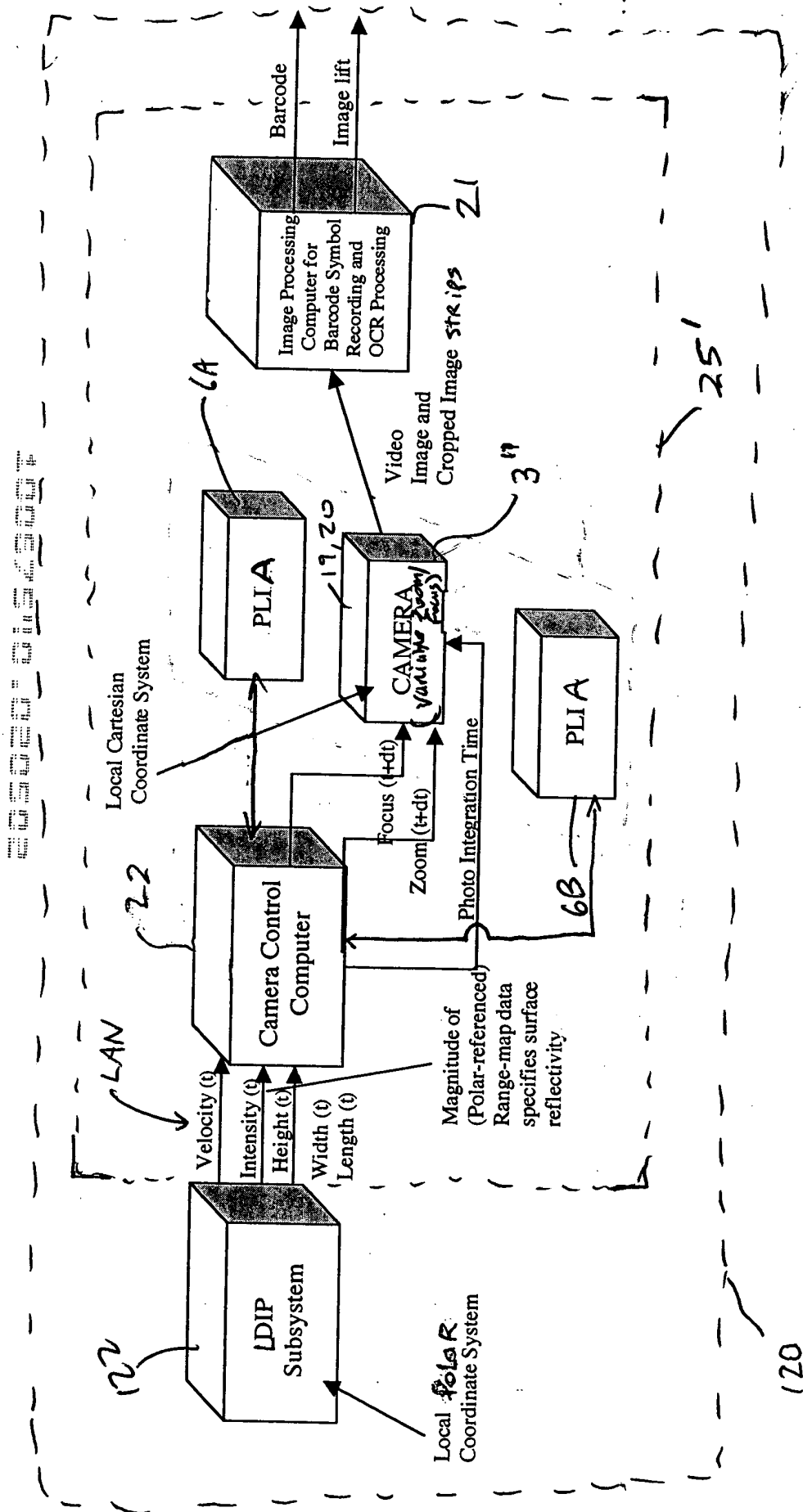


FIG. 11

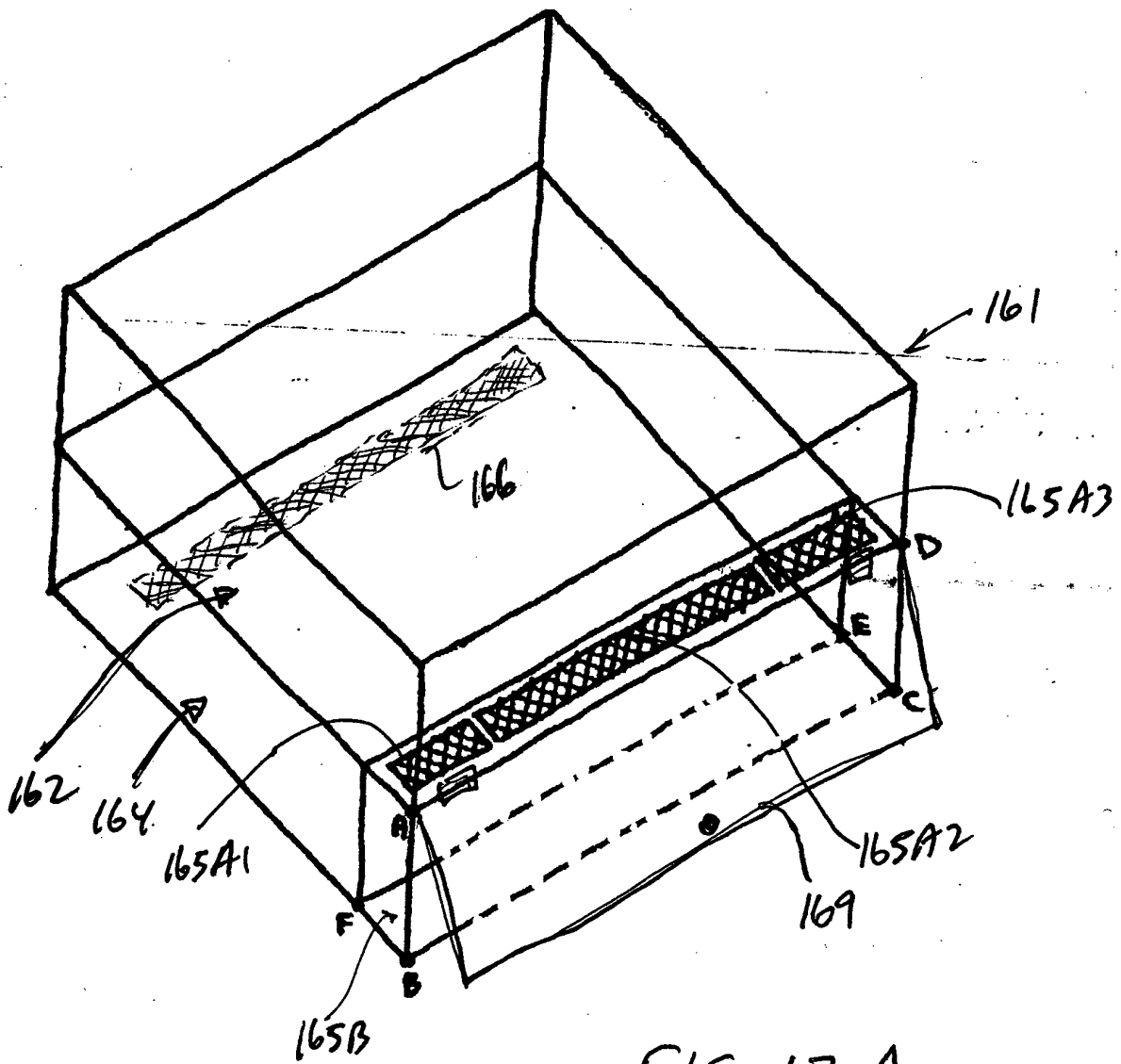


FIG. 12A

205/332

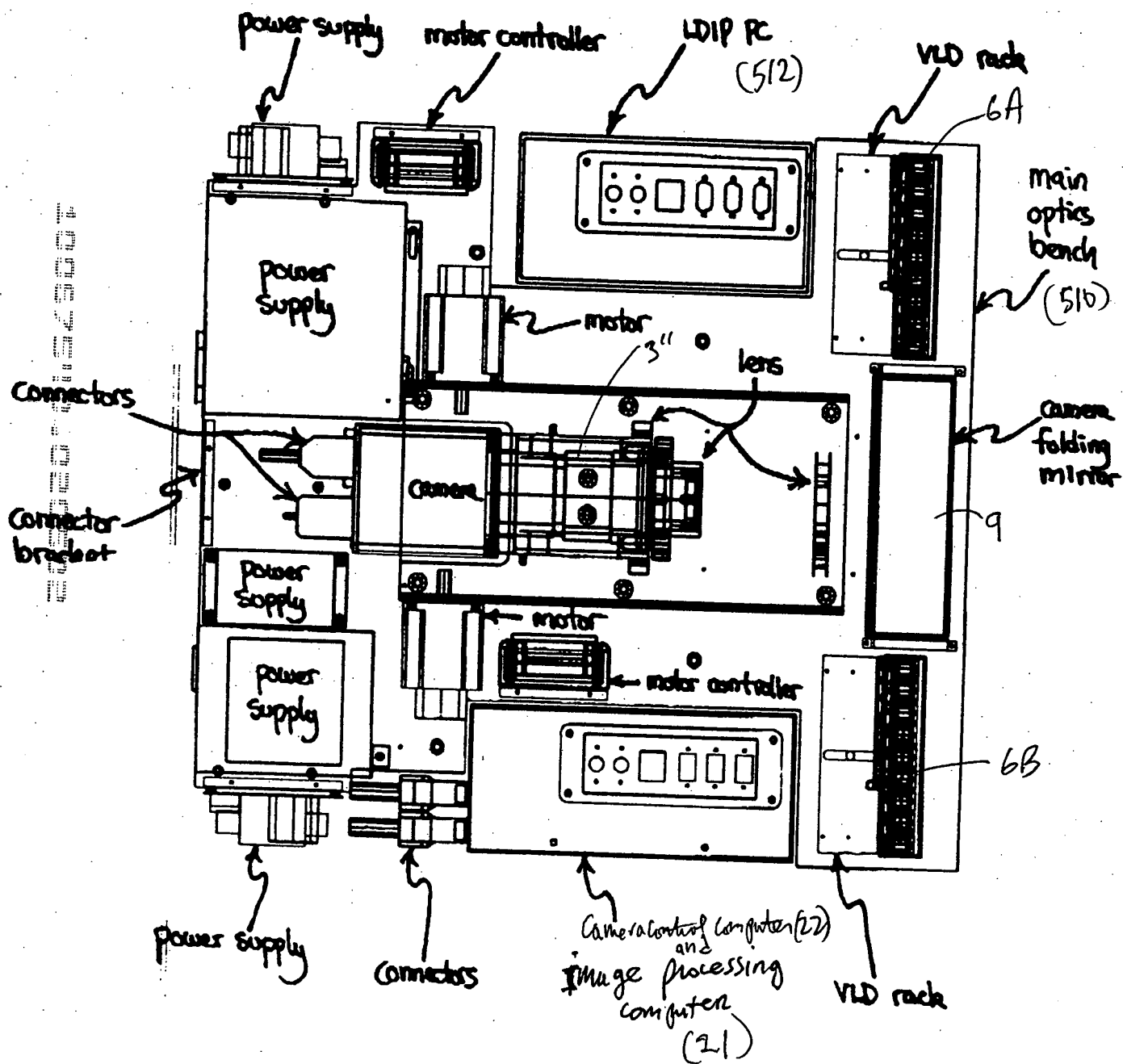


FIG. 12C

206/332

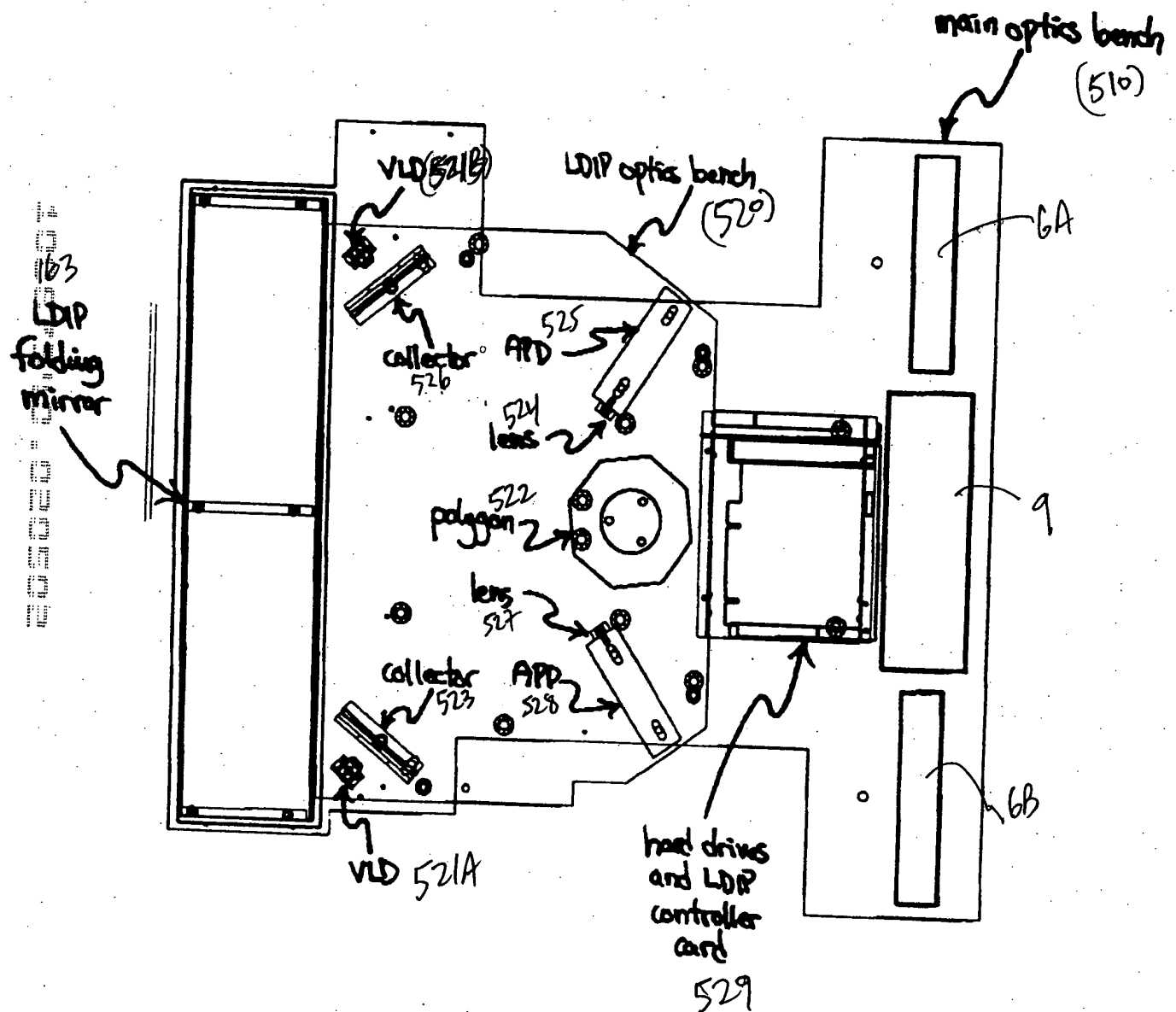
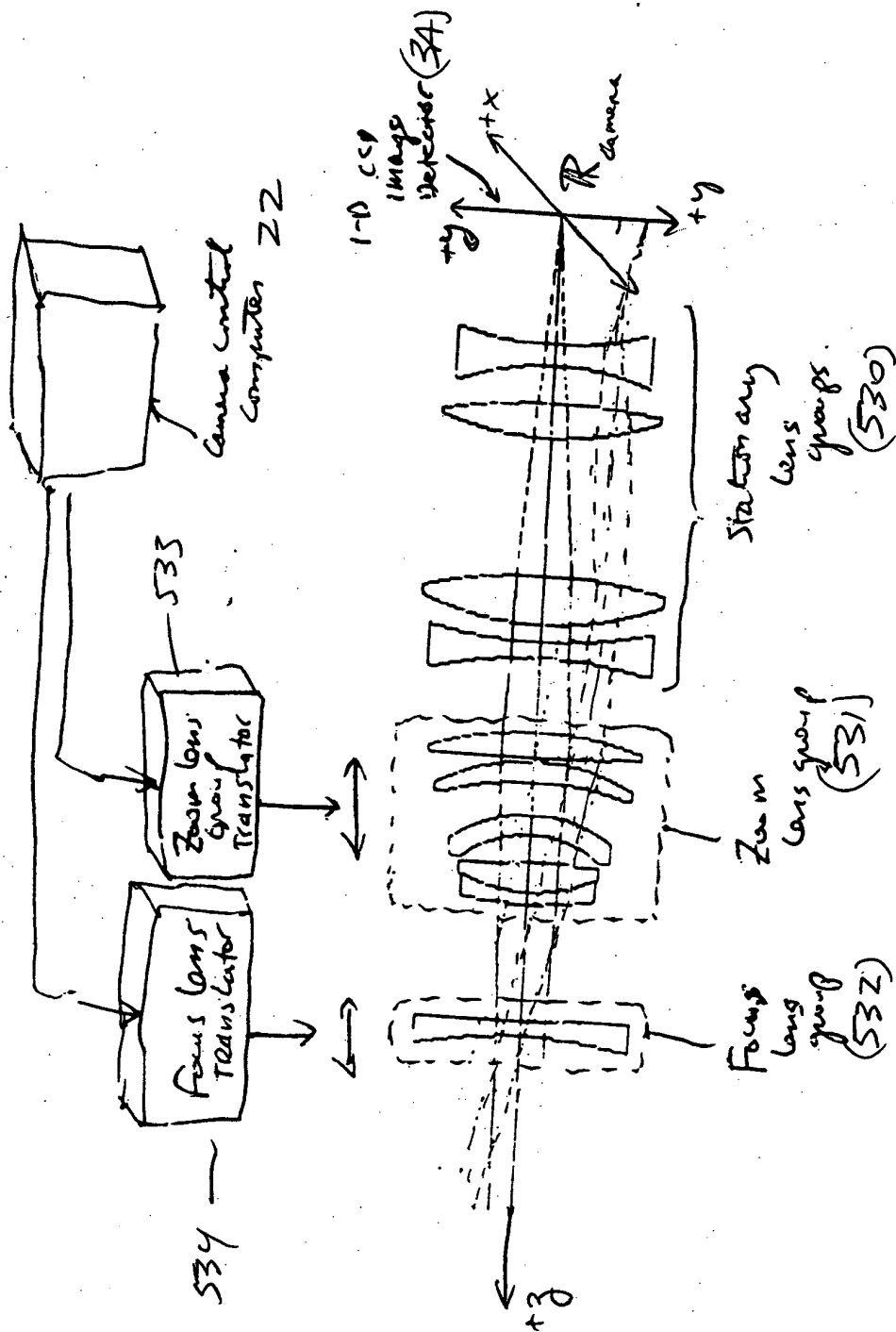


FIG. 12D

207/332



(main optics)
(lens groups)

FIG. 12E

208/332

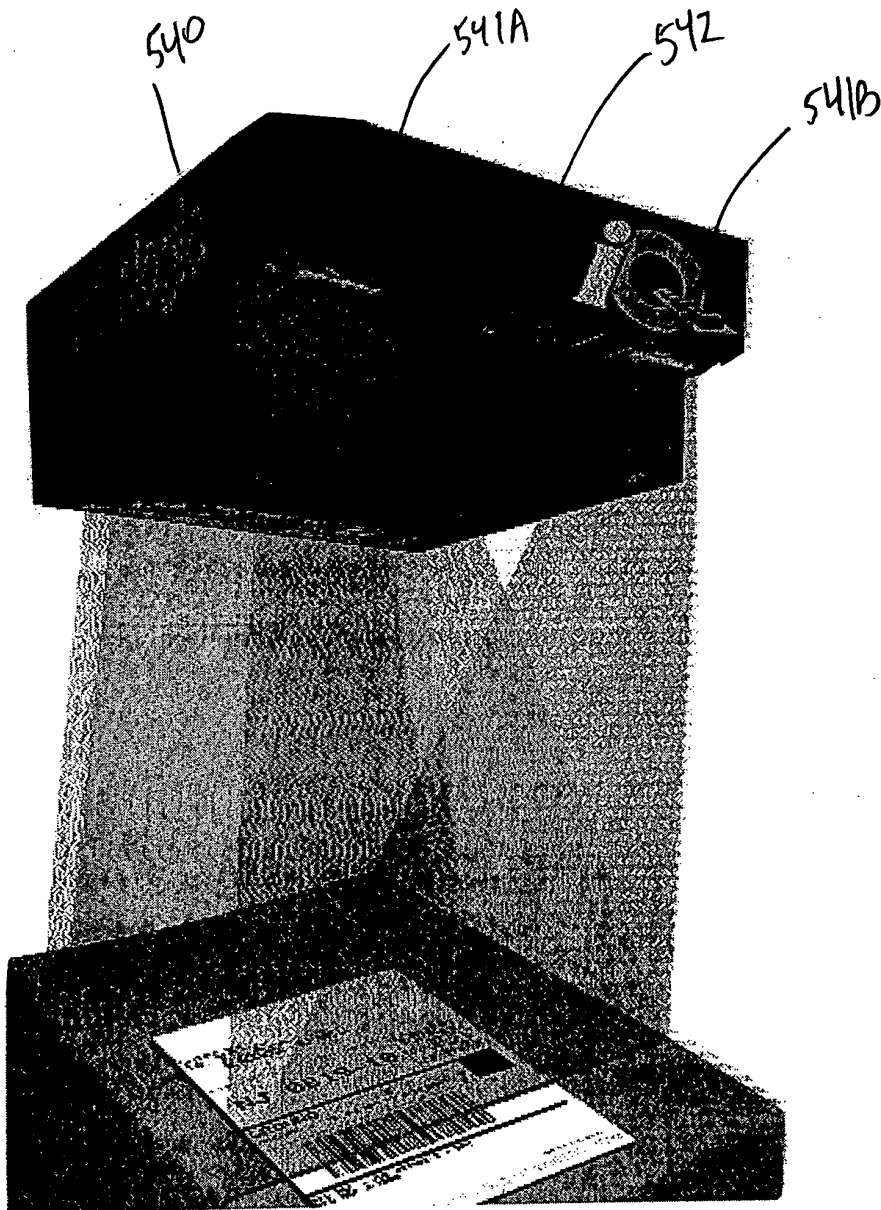


FIG. 13A

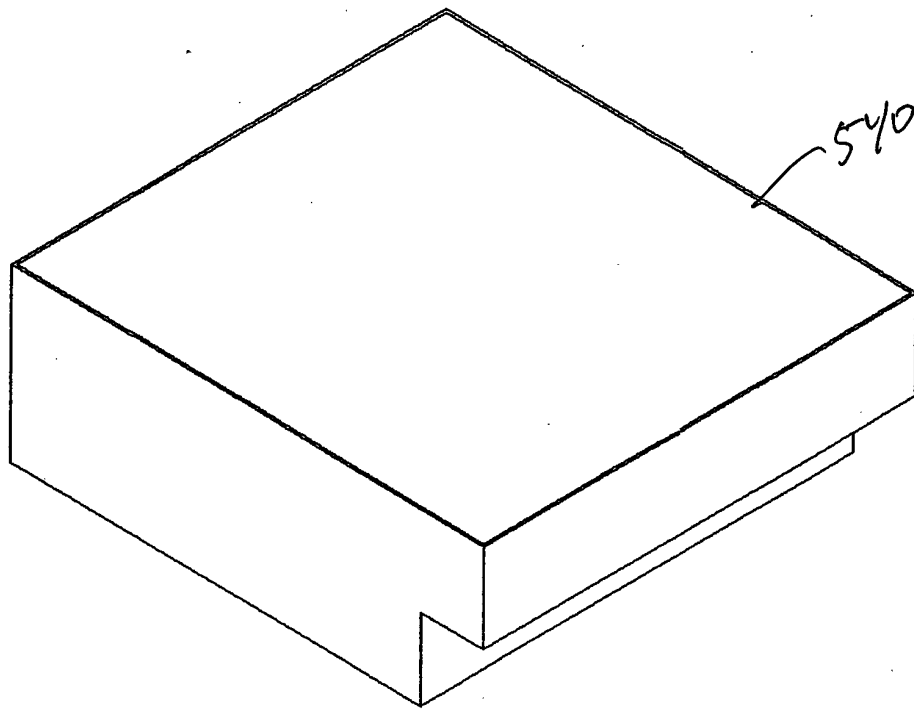


FIG. 13B

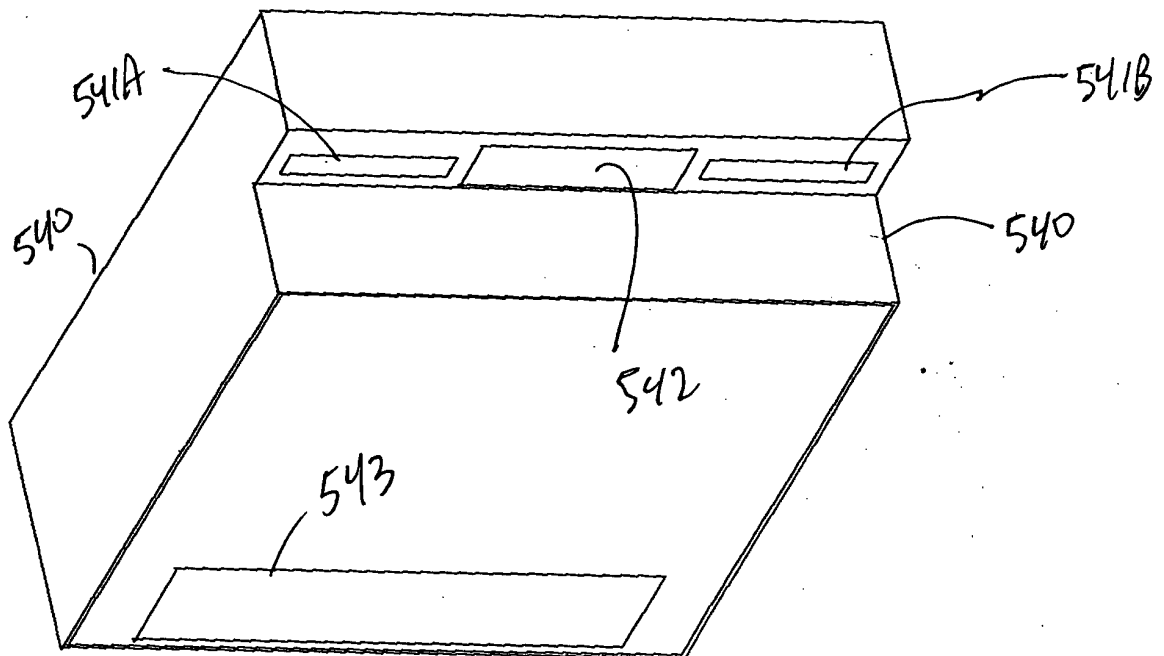


FIG. 13C

210/332

PLLIM-BASED PACKAGE IDENTIFICATION AND DIMENSIONING (PID) SYSTEM

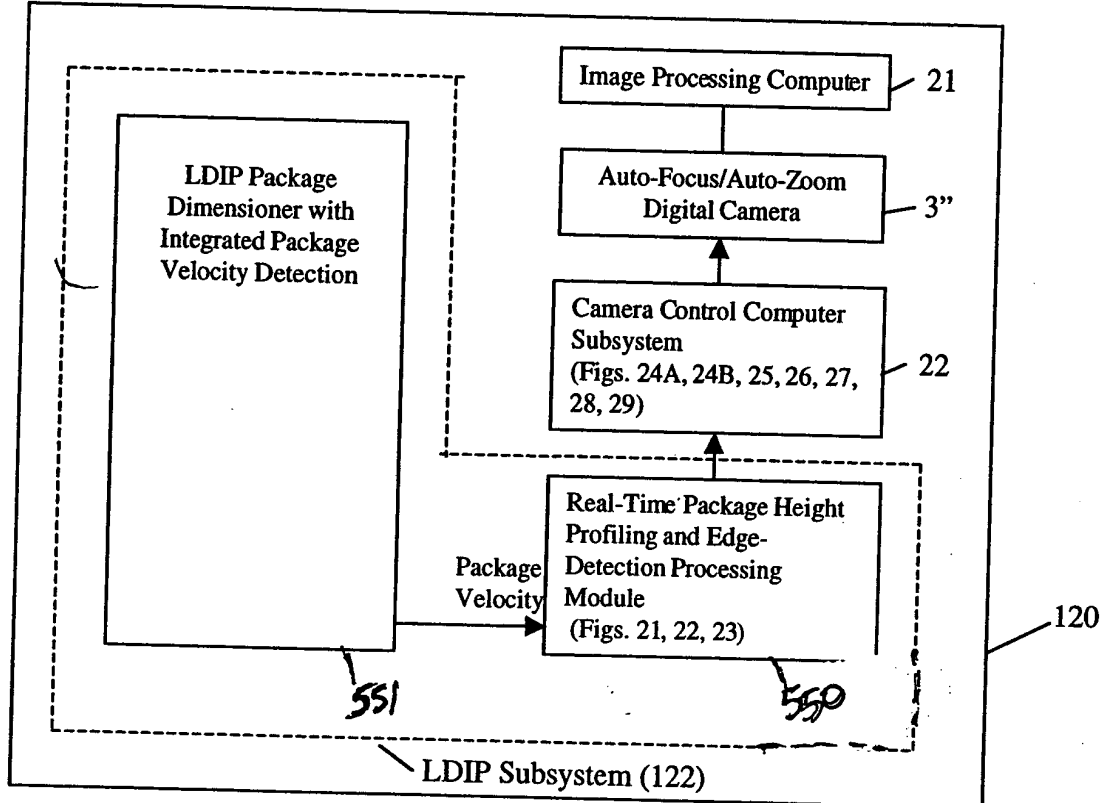


FIG. 14

211/332

LDIP REAL-TIME PACKAGE HEIGHT PROFILE AND EDGE DETECTION METHOD

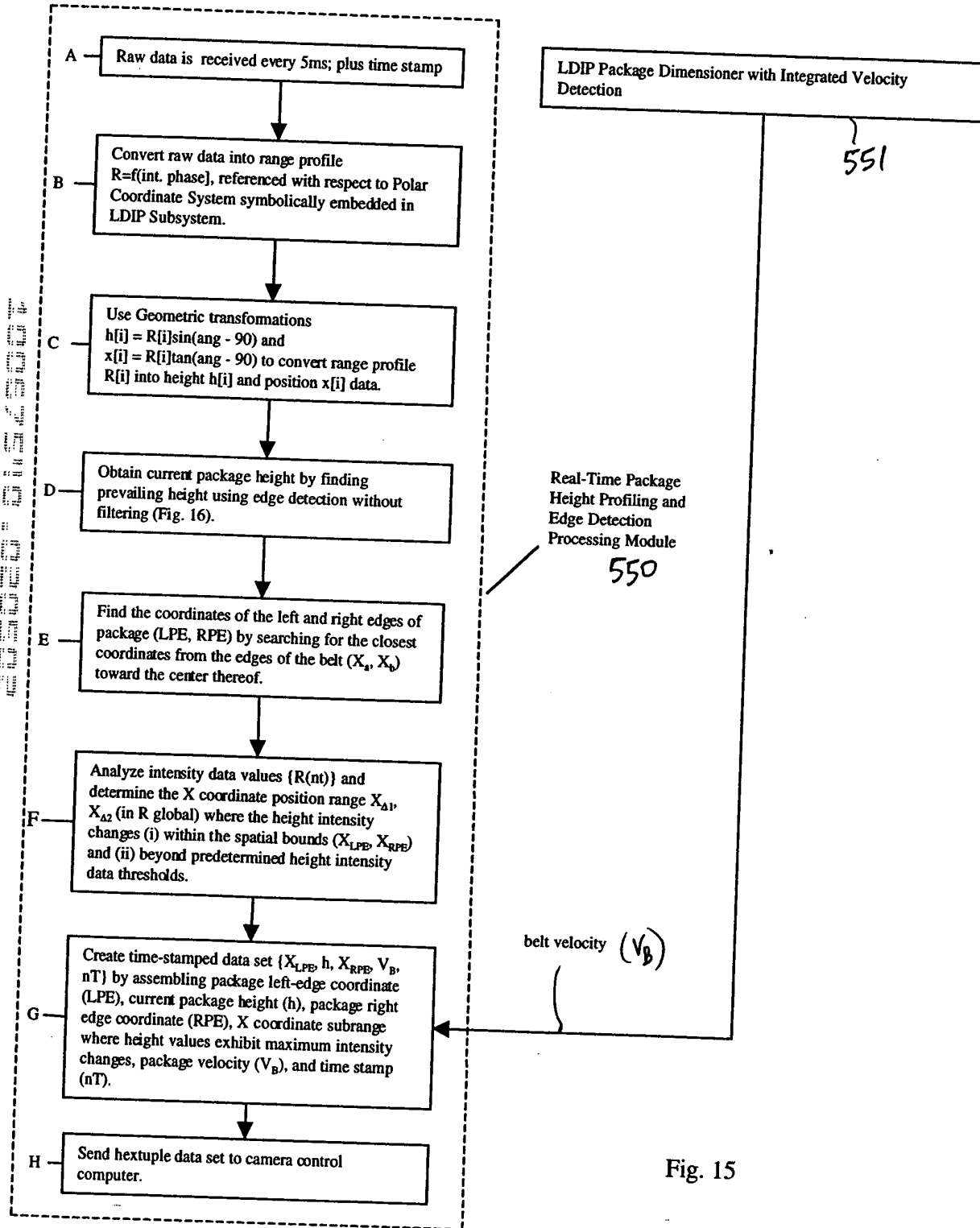


Fig. 15

LDIP Real Time Package Edge Detection

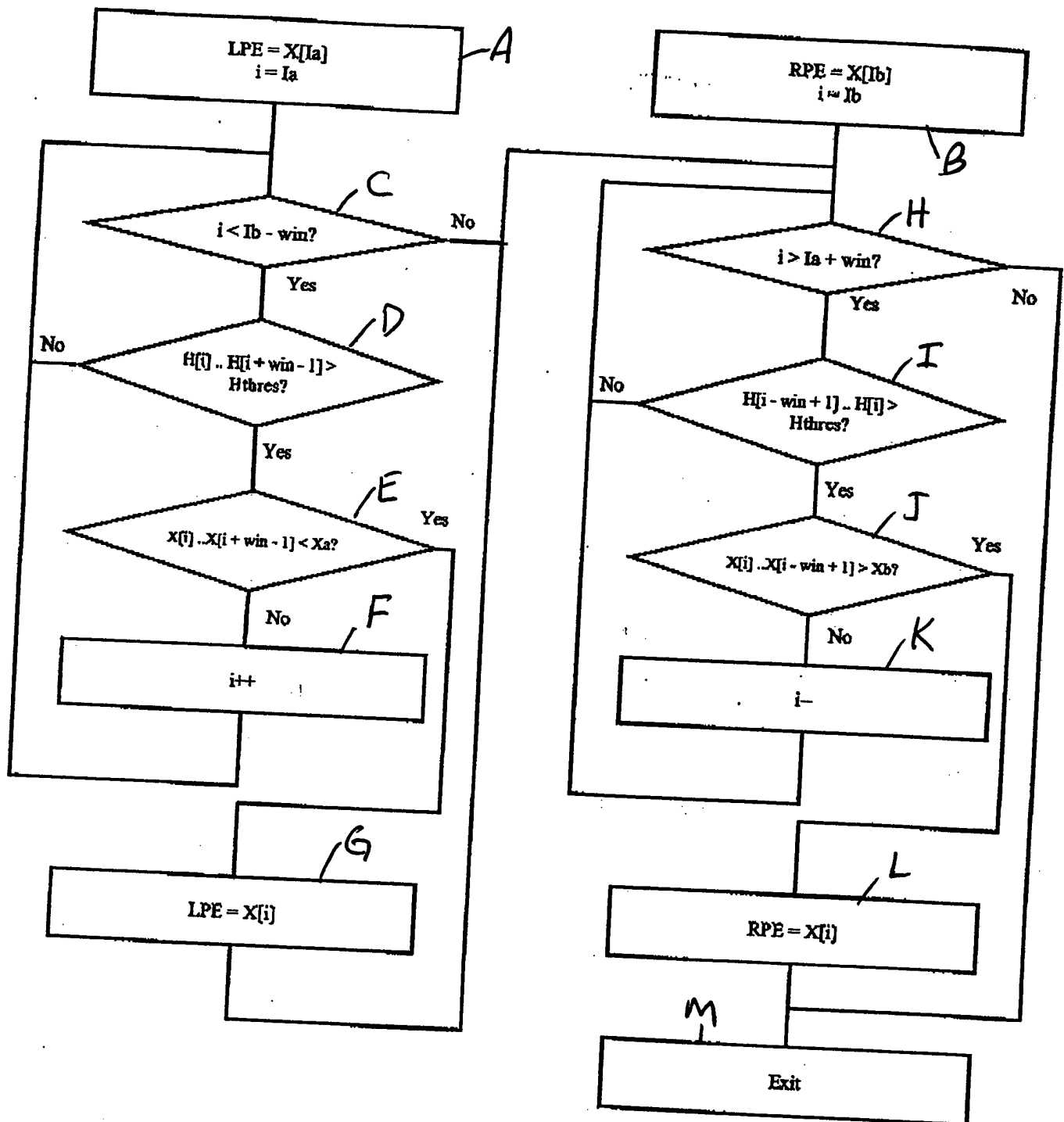


FIG. 16

213/332

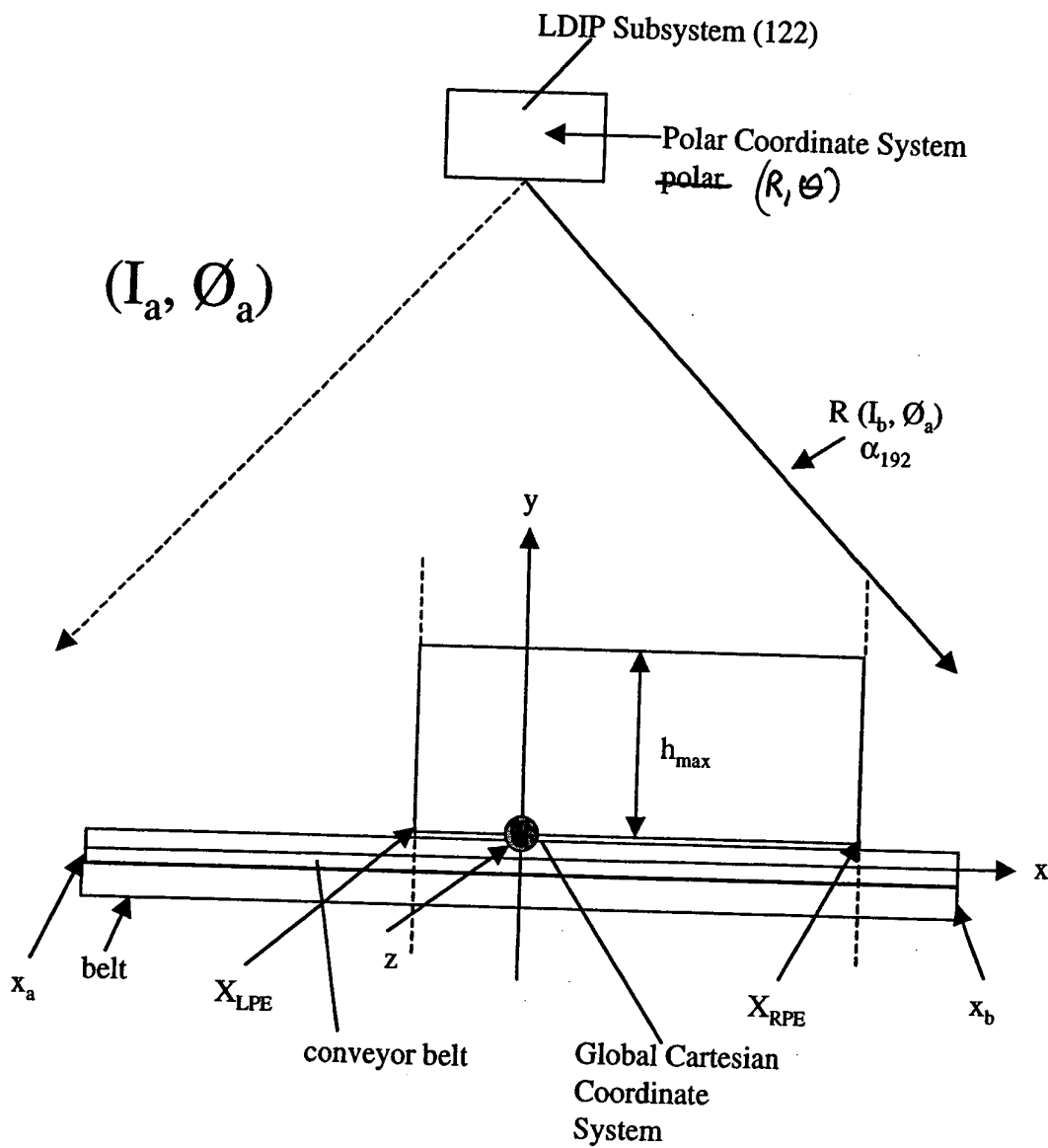


Fig. 17

214/332

INFORMATION MEASURED AT SCAN ANGLES BEFORE COORDINATE TRANSFORMS

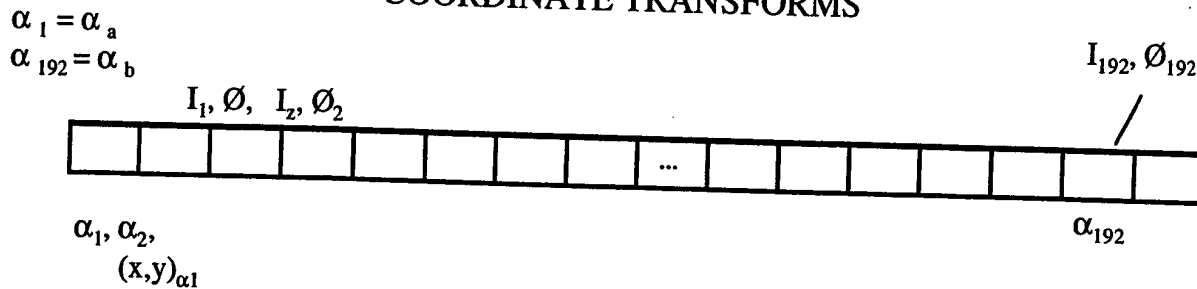


Fig. 17A

RANGE AND POLAR ANGLE MEASURES TAKEN AT SCAN ANGLE α BEFORE COORDINATE TRANSFORMS

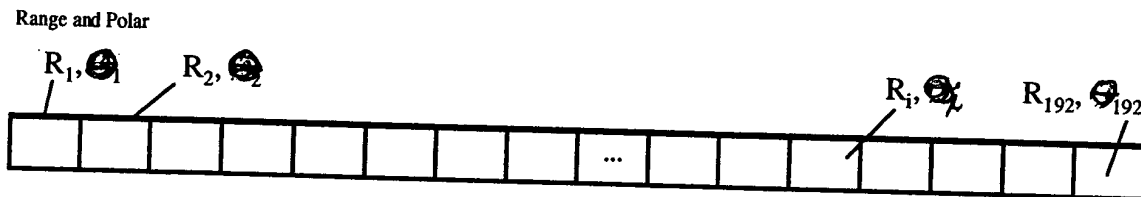


Fig. 17B

MEASURED PACKAGE HEIGHT AND POSITION VALUES AFTER COORDINATE TRANSFORMS

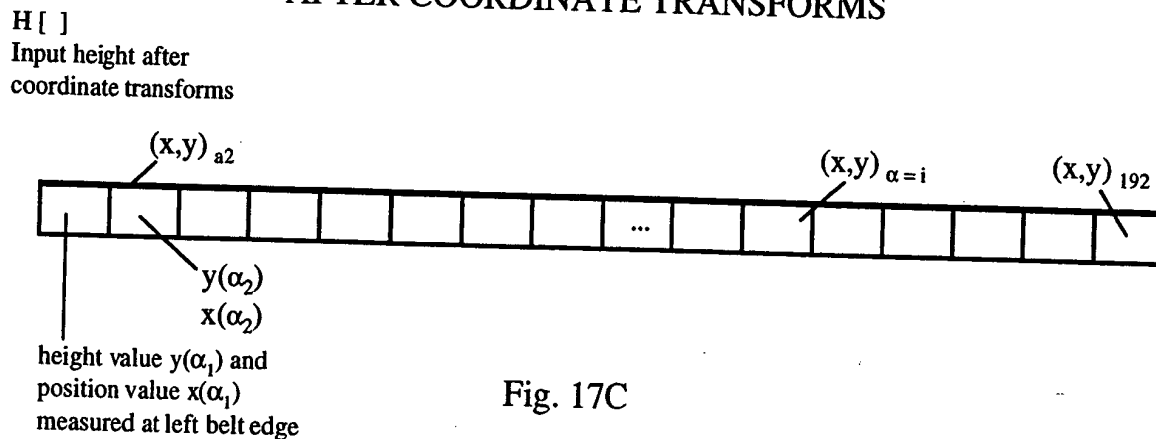


Fig. 17C

CAMERA CONTROL PROCESS CARRIED OUT WITHIN THE CAMERA CONTROL SUBSYSTEM OF EACH OBJECT ATTRIBUTE ACQUISITION AND ANALYSIS SYSTEM

560

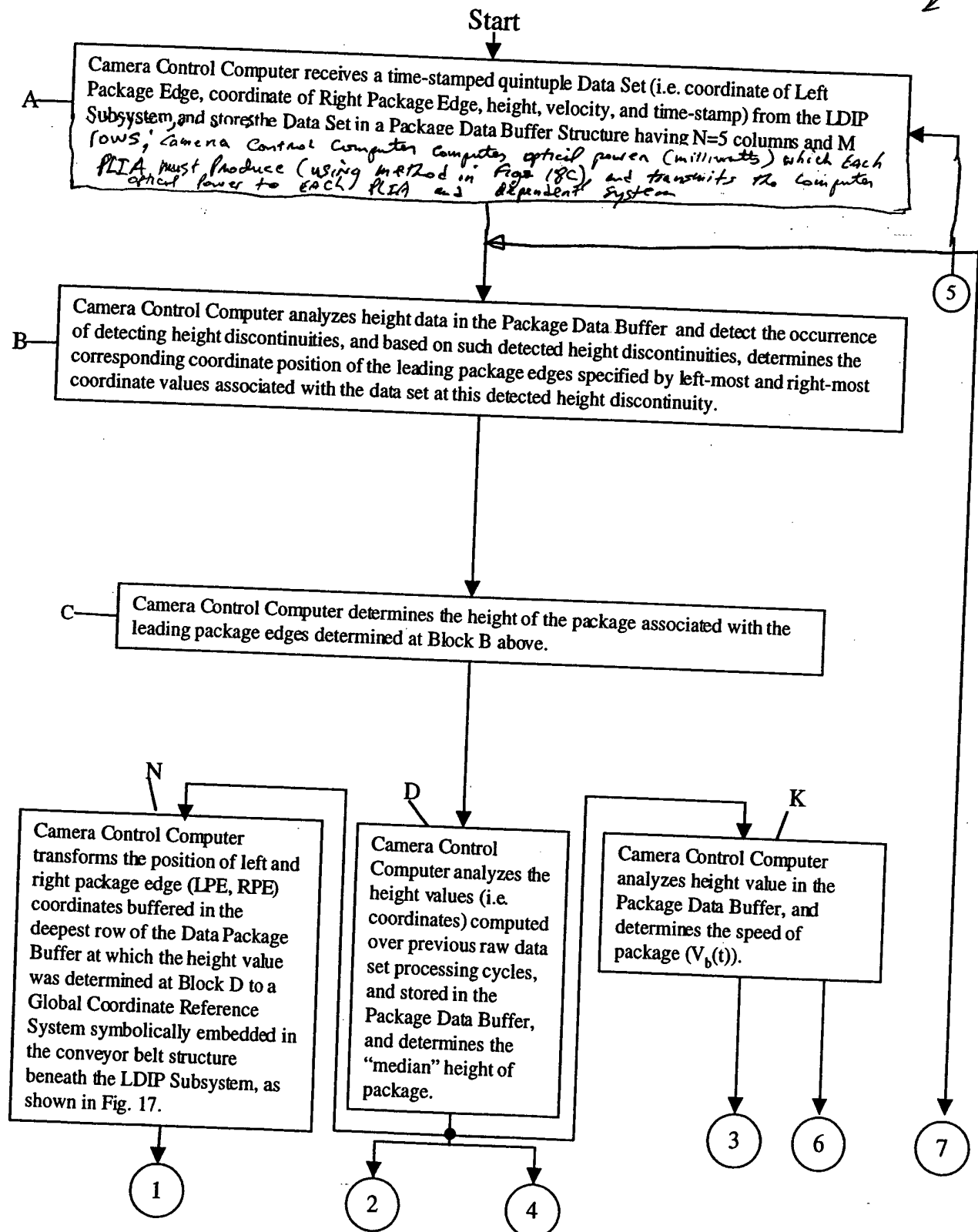


Fig. 18A

216/332.

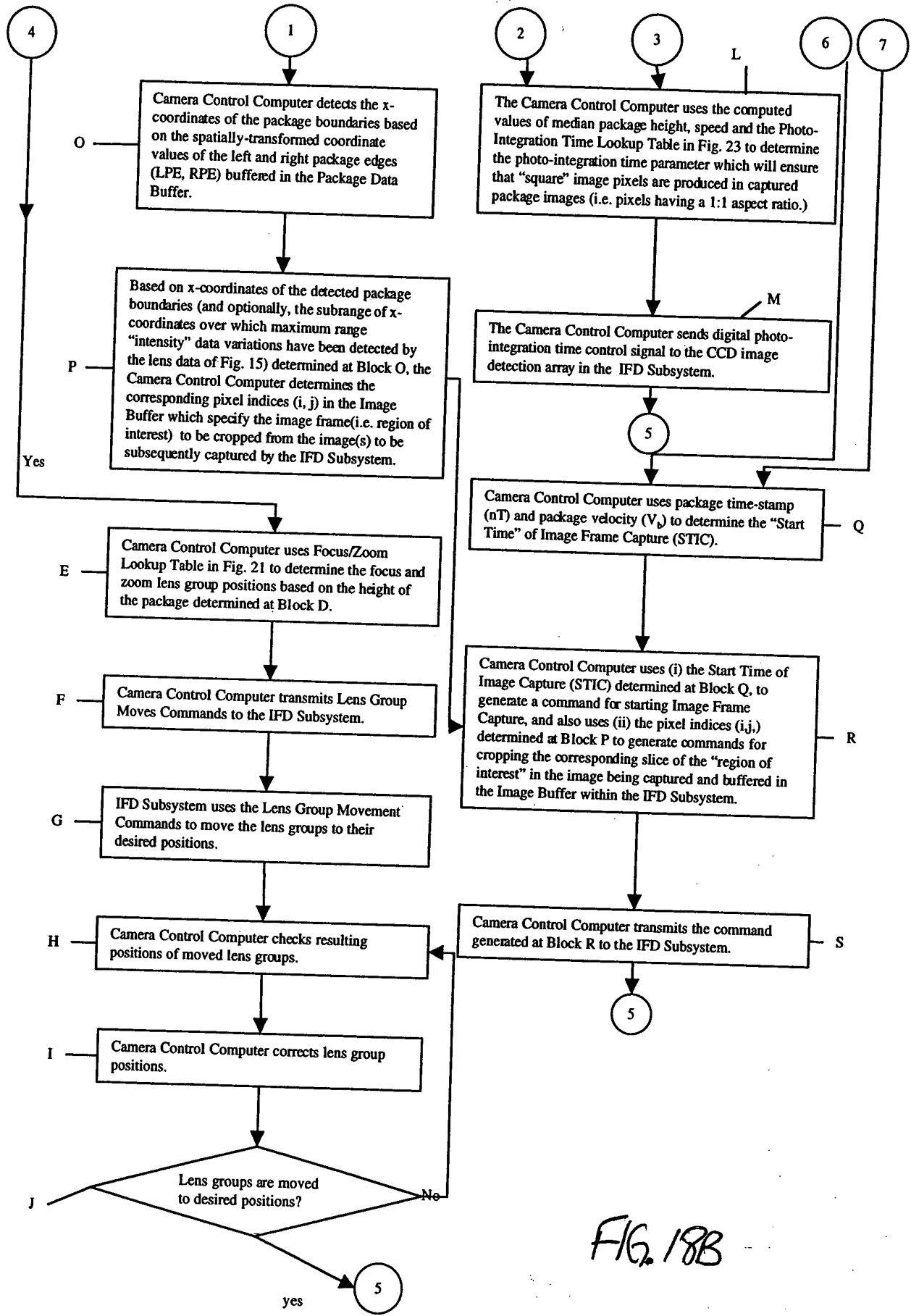


FIG. 18B

A

Computer Line Rate of Linear LCD Sensor (dots/sec) based on computed belt velocity (inches/sec) and constant image resolution (dots/inch) desired, using equation:

$$\text{line rate} = (\text{belt velocity}) \times (\text{image resolution})$$

B

Computer photointegration time ΔT of the linear image sensor based on computed line rate using the formula:

$$\text{photointegration time} = 1/\text{line rate}$$

A

Fig. 18C1

218/332

A

Compute optical power (milliwatts) of each PLIA based on computed photointegration time (ΔT) using the following formula:

$$\text{optical power of LD (milliwatts)} = \frac{\text{constant}}{\text{photointegration time } \Delta T}$$

Fig. 18C2

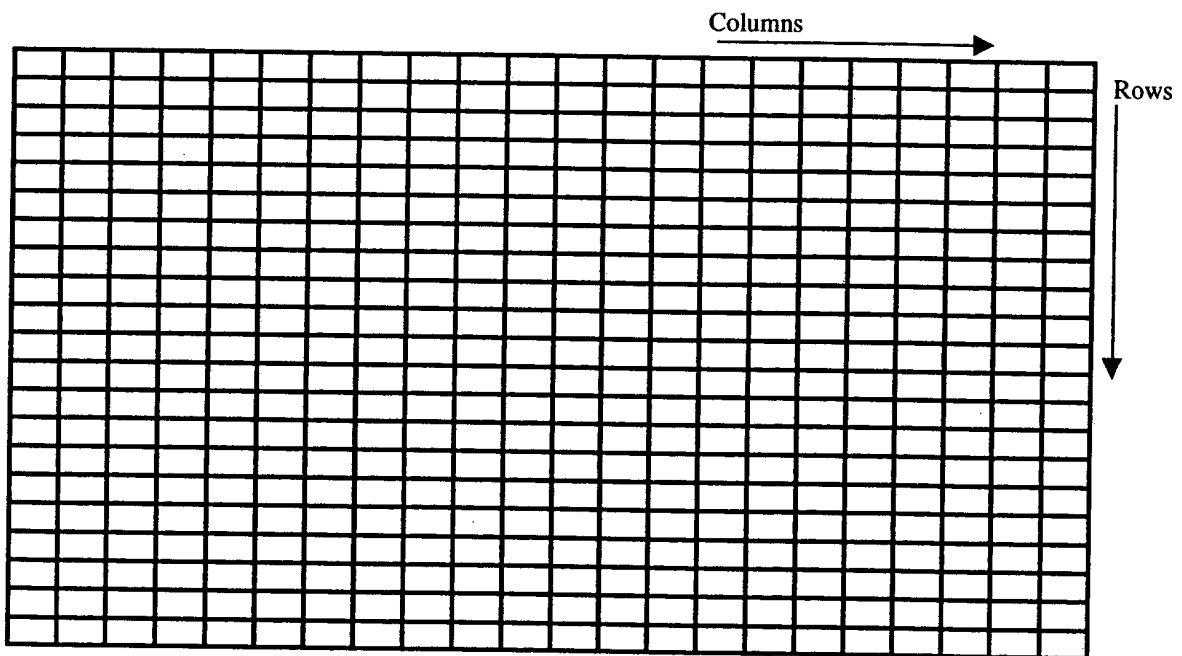
219/332

X coordinate subrange where
maximum range "intensity"
variations have been detected

Left Package Edge (LDE)	Package Height (h)	Right Package Edge (RPE)	Package Velocity	Time-stamp (nT)	
					Row 1
					Row 2
					Row 3
					Row 4
					Row 5
					Row M

Package Data Buffer (FIFO)

Fig. 19



Camera Pixel Data Buffer
pixel indices (i,j)

Fig. 20

60000 012300

220/332

Zoom and Focus Lens Group Position
Look-up Table

Distance from Camera H (mm)	Zoom group distance (mm) Y (Zoom)	Focus group distance (mm) Y (Focus)
1000	21.57489228	2.47E-05
1100	19.38089696	10.99009783
1200	17.10673434	20.65783177
1300	14.77137314	29.10917002
1400	12.39153565	36.47312595
1500	9.979114358	42.87845436
1600	7.540639114	48.44003358
1700	5.078794775	53.25495831
1800	2.595989366	57.40834303
1900	0.099972739	60.98883615

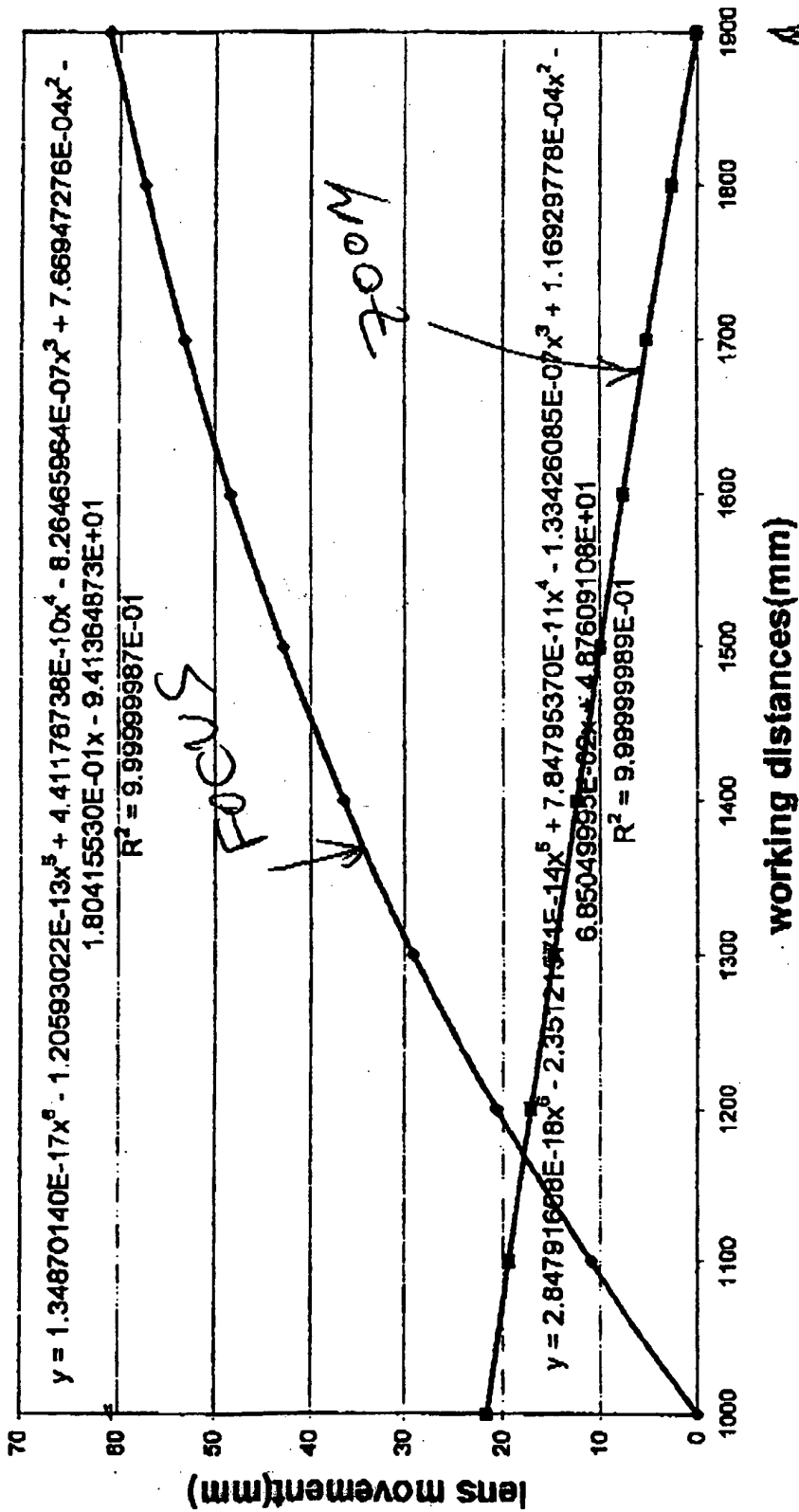
(Use interpolation techniques for walking distances between listed points in table)

FIG. 21

* Note: The focal distance of Zeon (eff. focal length) of camera lens are coupled (inter-dependent) in this commercial embodiment. ~~the~~ ~~fixed~~ camera has a ~~fixed~~ ~~coupled~~ focal distance.

~~fixed~~ aperture F56

Focus and Zoom lens movement vs. working distances



t (inches)

26 above conveyor belt

← Package height above conveyor

conveyor-belt
surface

Fig. 22

221/332

222/332

600 feet per minute
(FPM)

2000 01525004 Photo-Integration Time Look-up Table

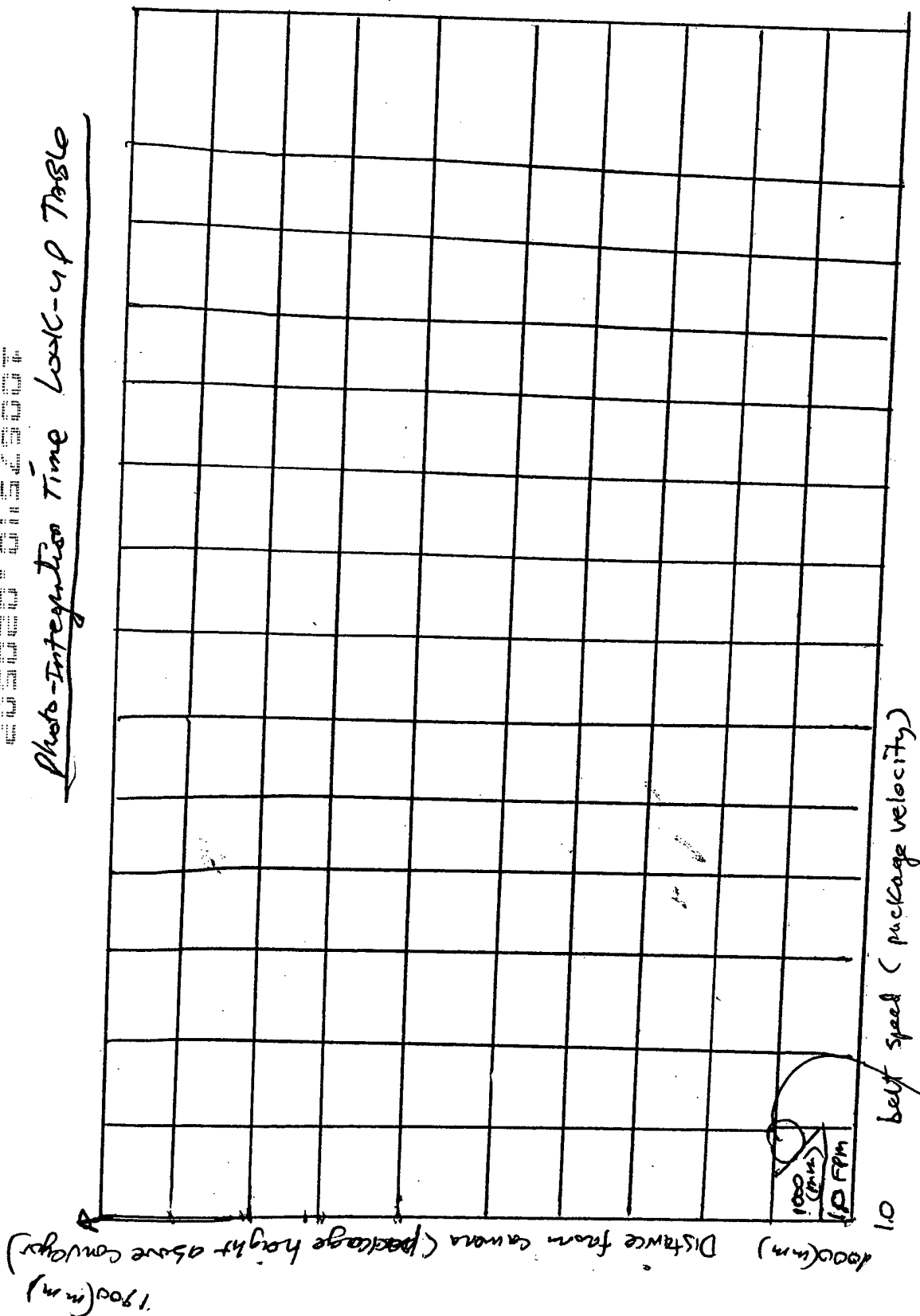


FIG. 23

Photo-integration
time value that
Ensures square image pixels
(1:1 aspect ratio)

2003 01 23 00 00

223/332

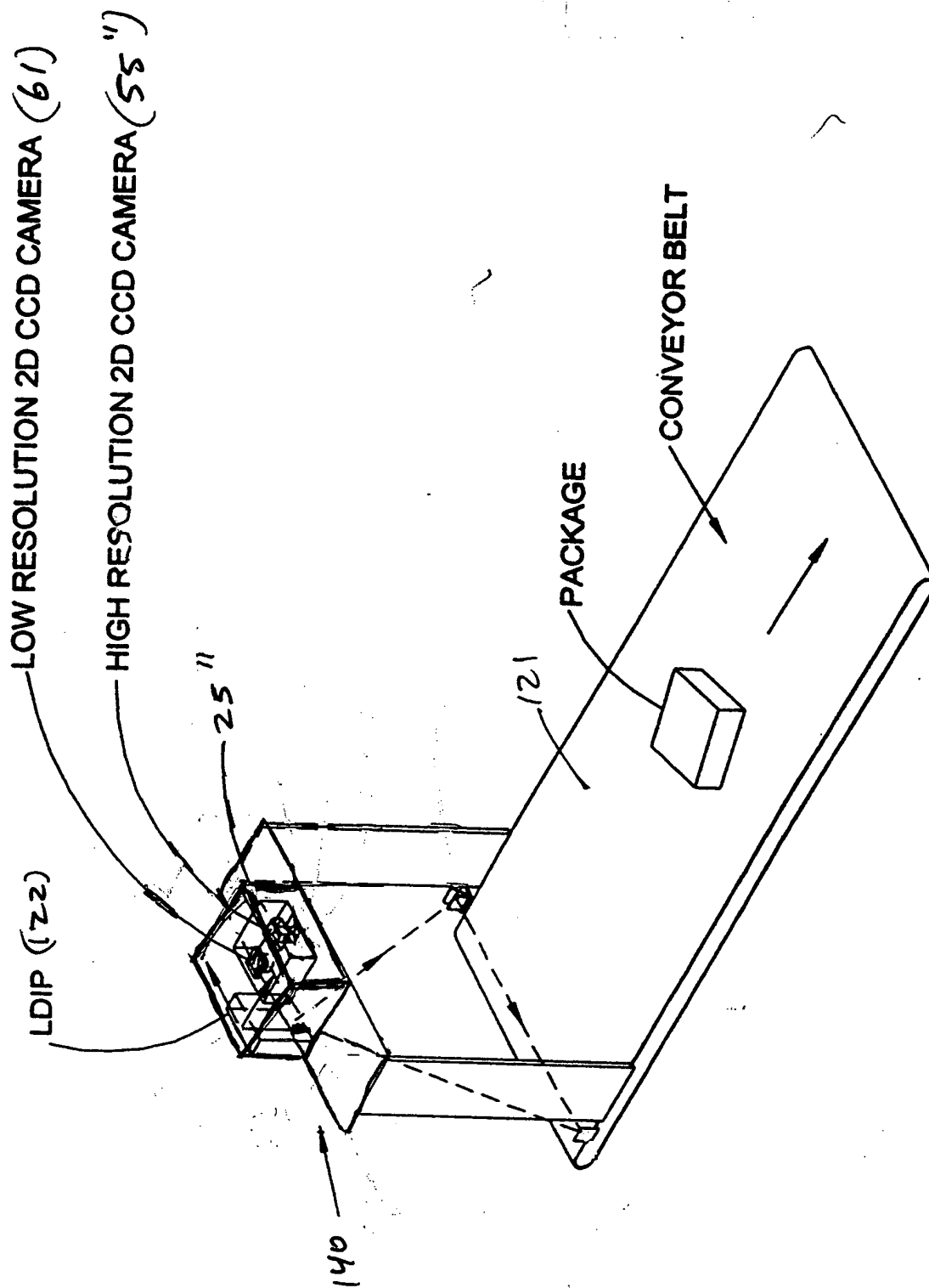


FIG 24

224/332

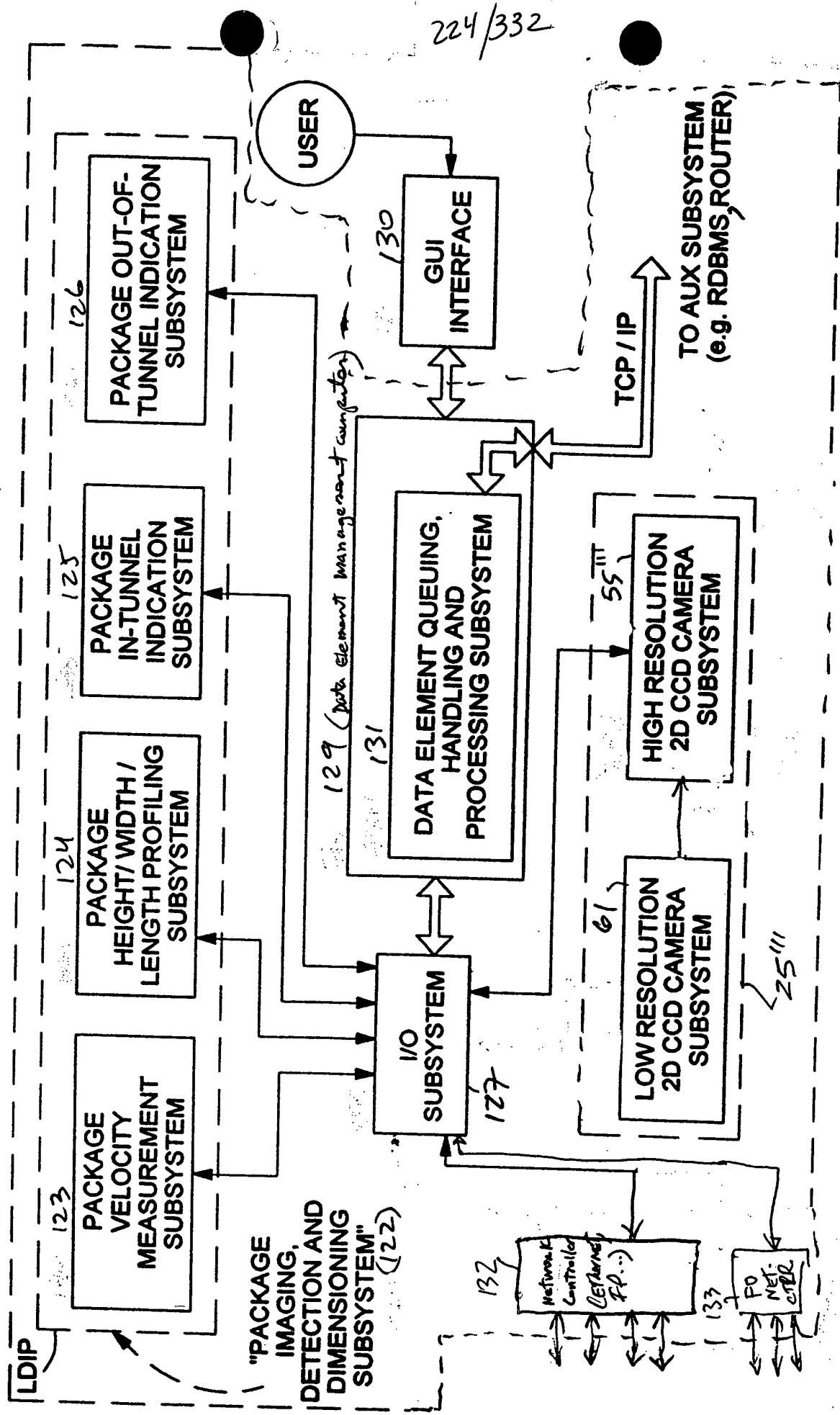


FIG. 25

140

225/332

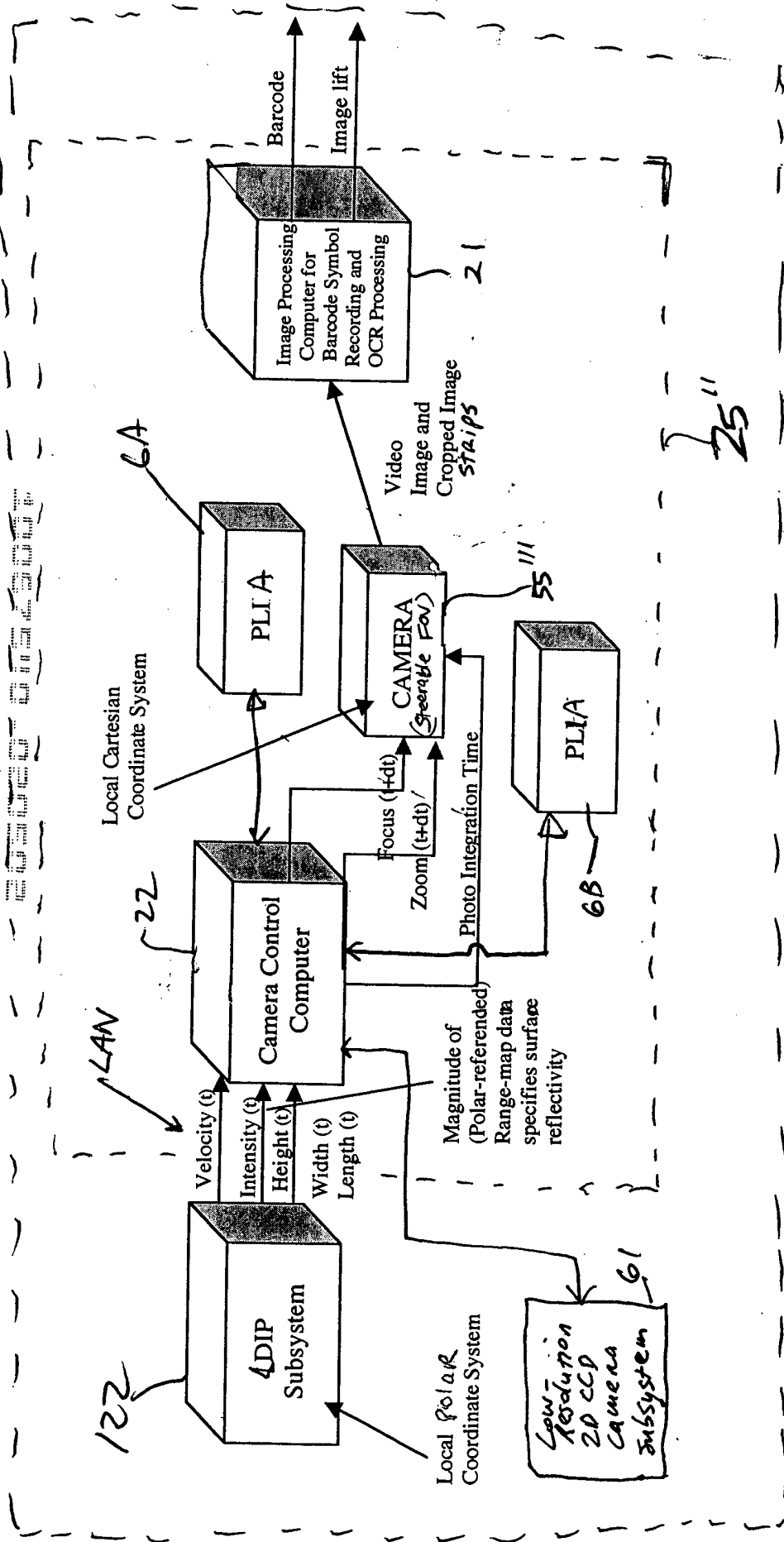
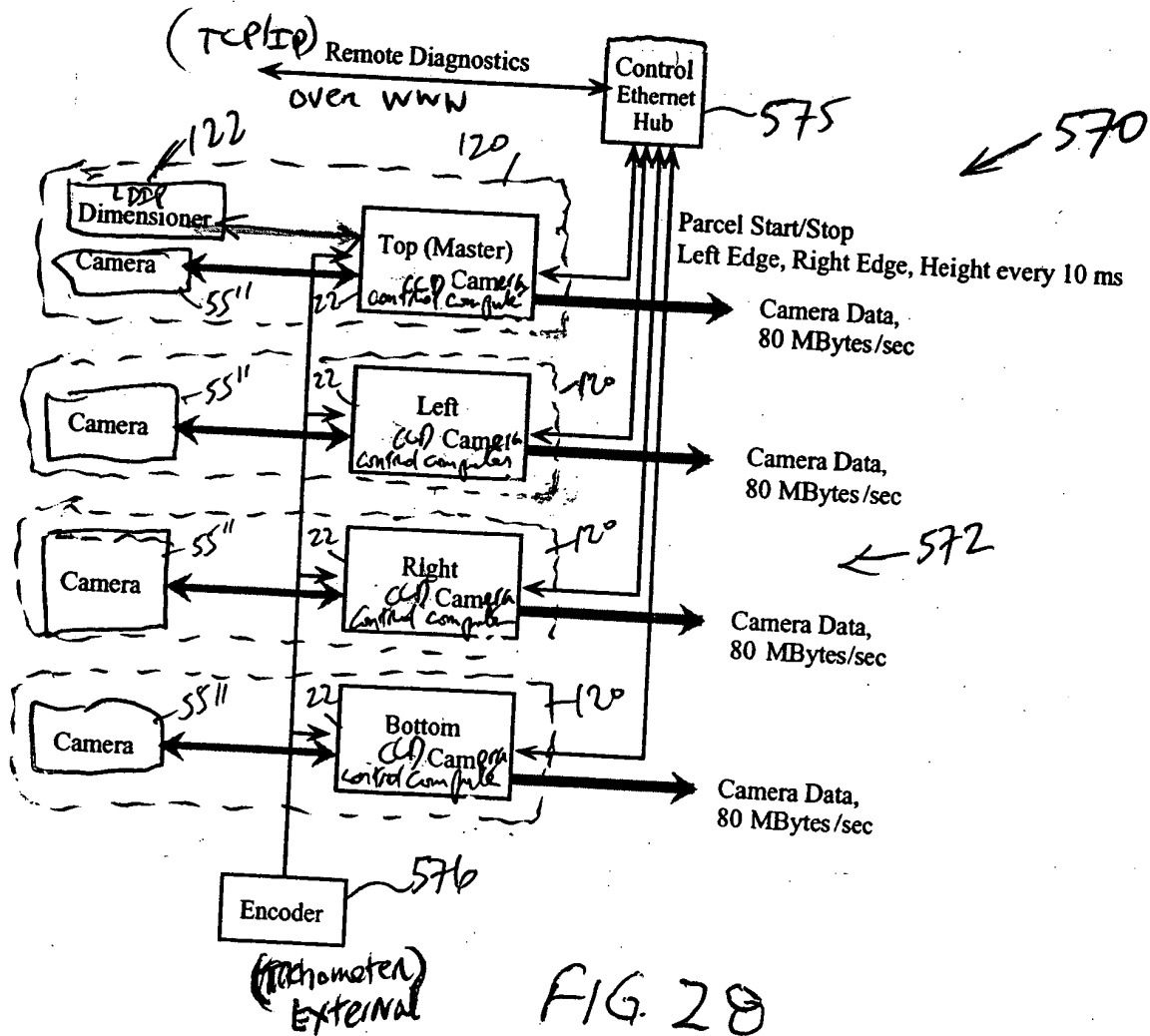
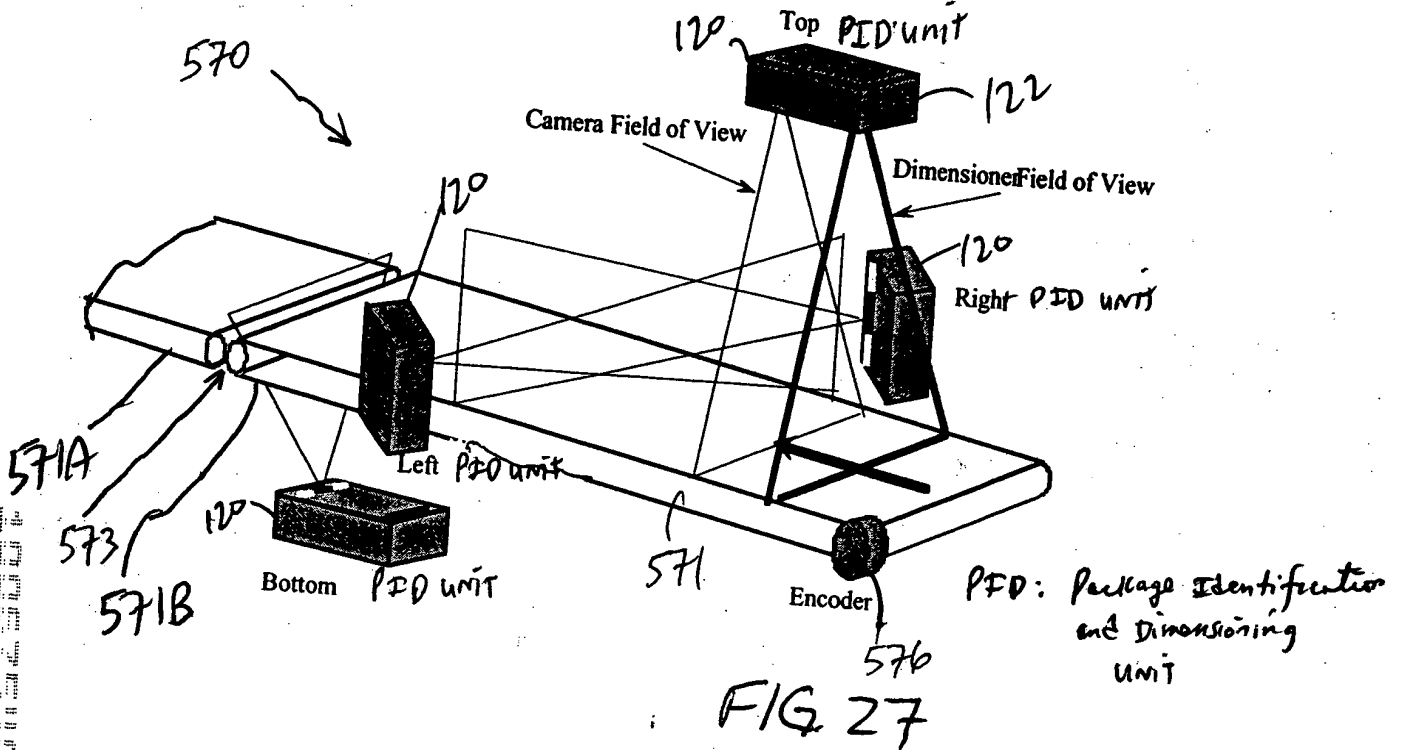


FIG. 26



227/332

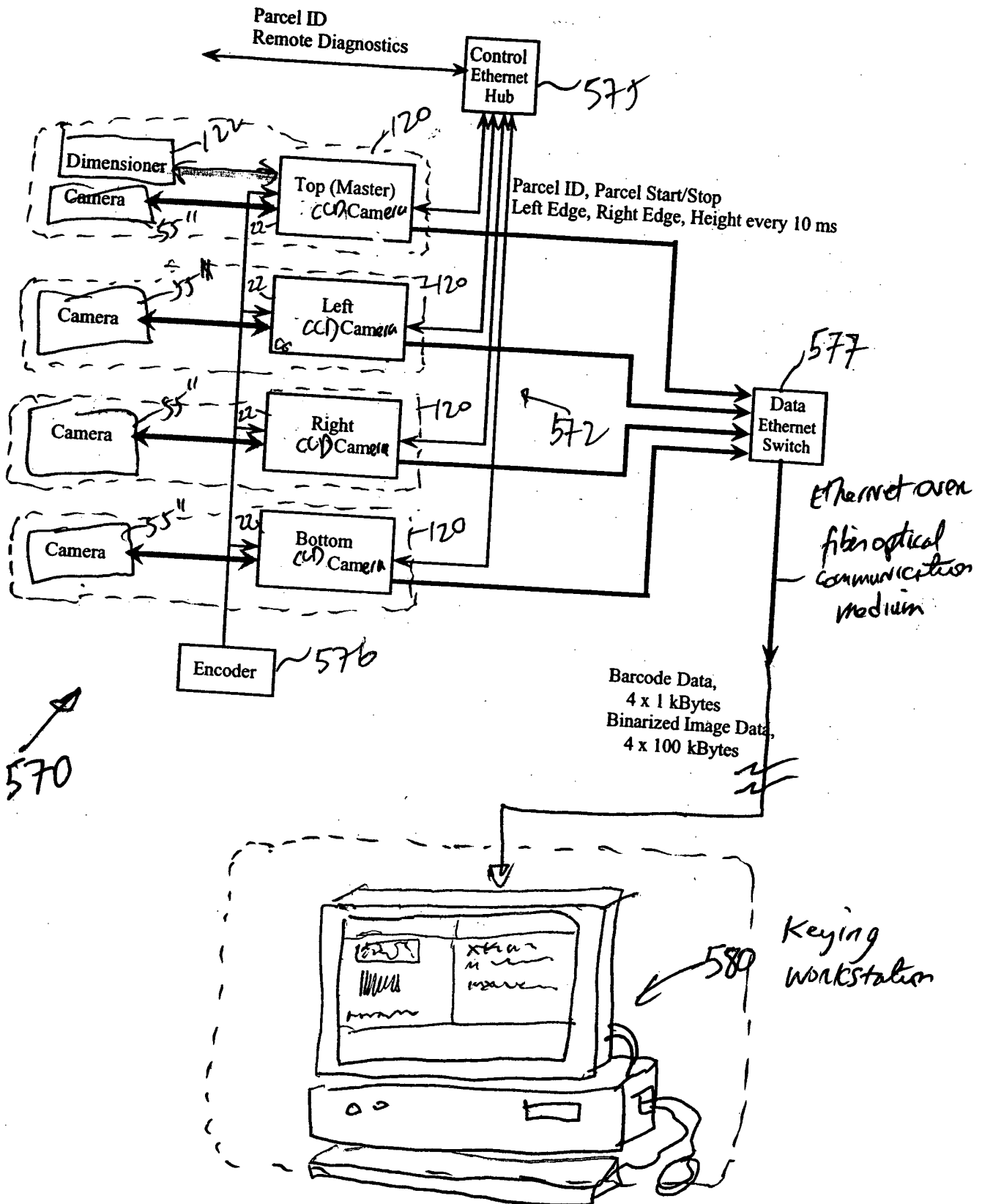


FIG. 29

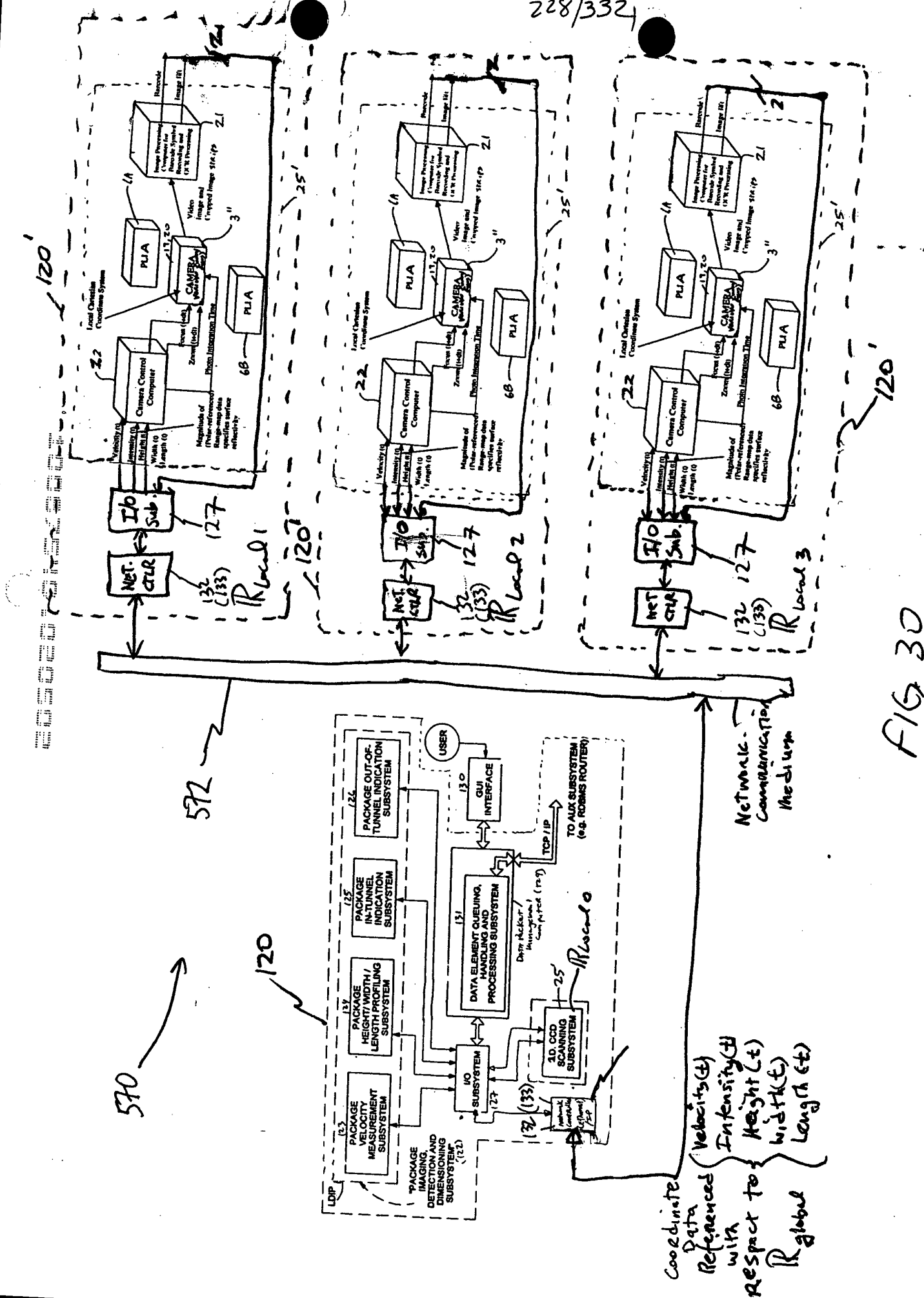
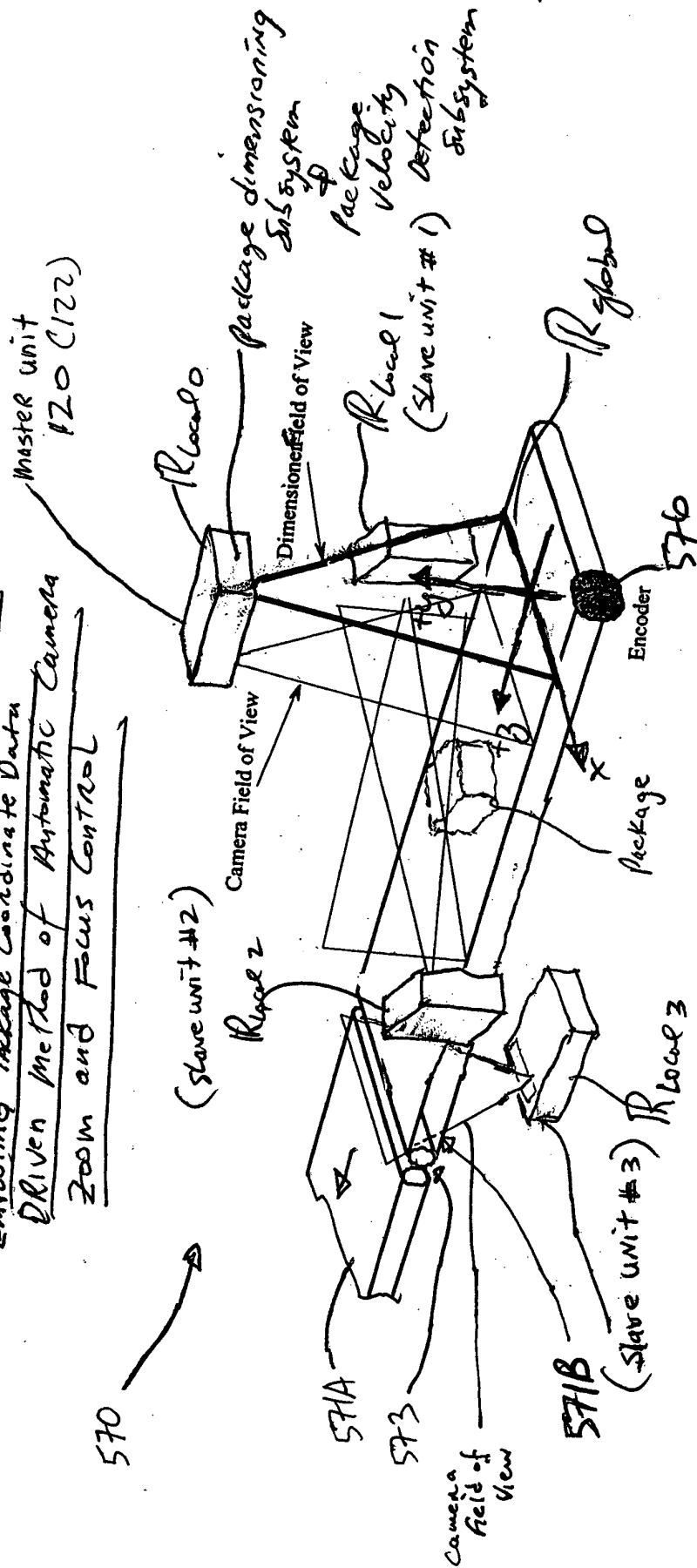


FIG 30

229/332

CCD Camera-Based Tunnel System
Employing Package Coordinate Data
Driven Method of Automatic Camera
Zoom and Focus Control



Package coordinate data \parallel R_{global} \Rightarrow Package coordinate data \parallel $R_{local i}$

FIG. 31

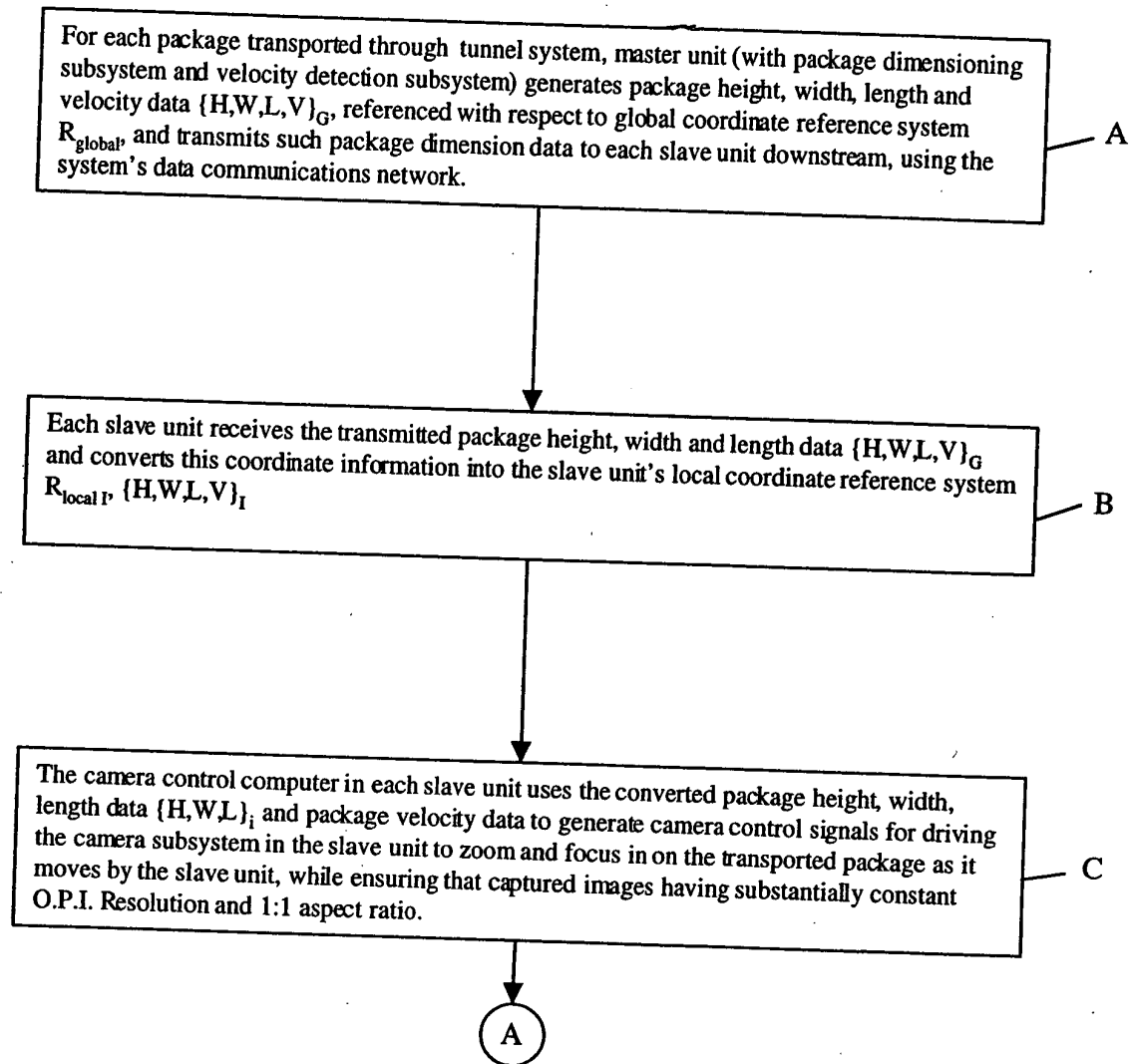


FIG. 32A



Each slave unit captures images acquired by its intelligently controlled camera subsystem, buffers the same, and processes the images to decode bar code symbol identifiers represented in said images, and/or to perform optical character recognition (OCR) thereupon.

D

The slave unit which decodes a bar code symbol in a processed image automatically transmits a package identification data element (containing symbol character data representative of the decoded bar code symbol) to the master unit (or other designated system control unit employing data element management functionalities) for package data element processing.

E

Master unit time-stamps received package identification data element, places said data element in a data queue, and processes package identification data elements and time-stamped package dimension data elements in said queue to link each package identification data element with one said corresponding package dimension data element.

F

FIG. 32B

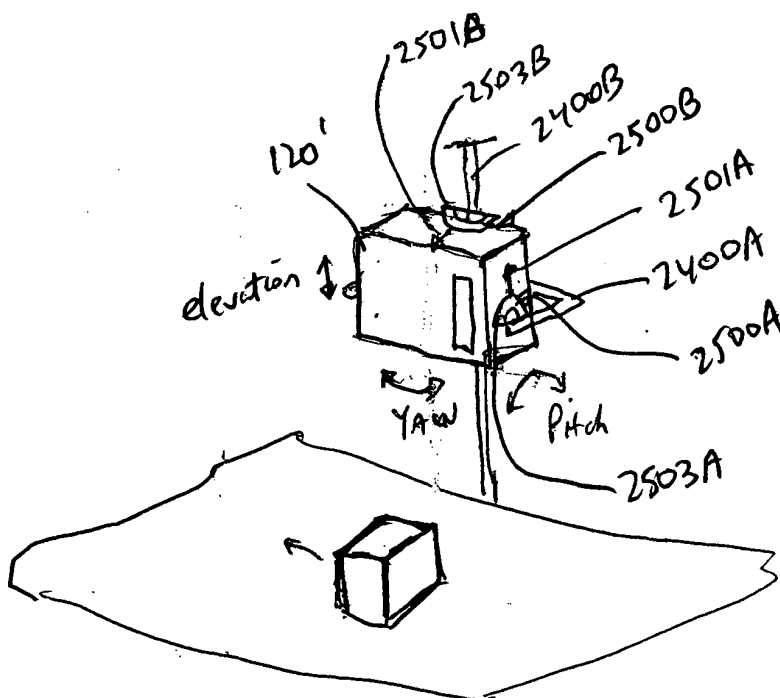
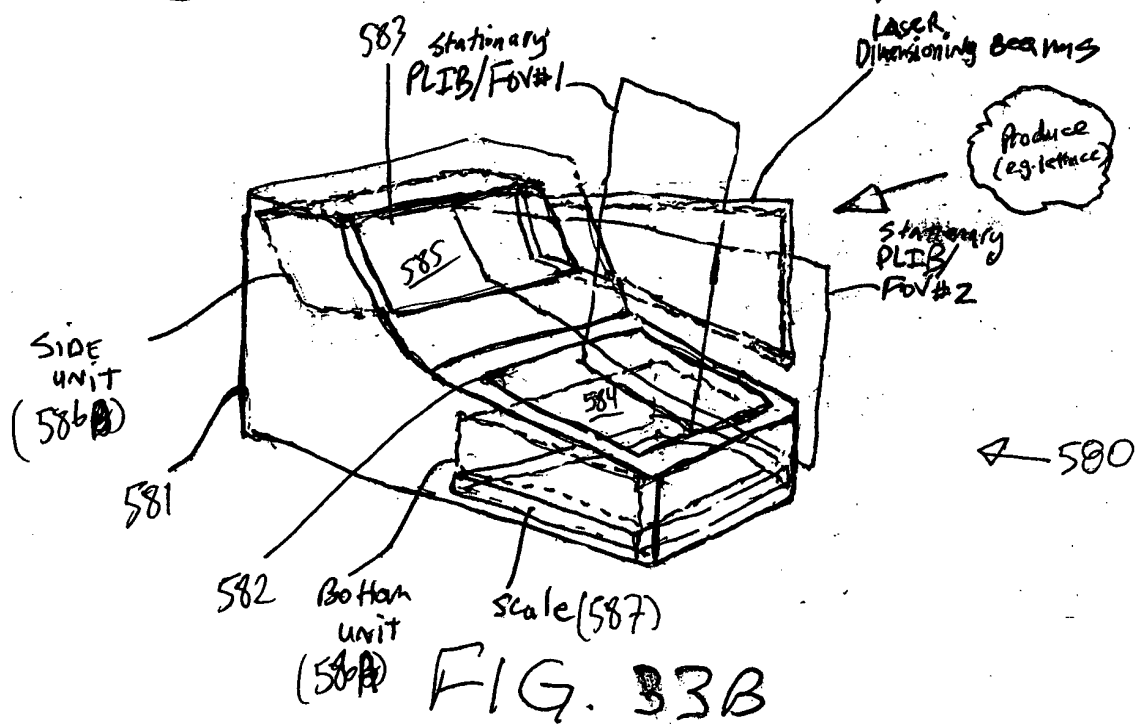
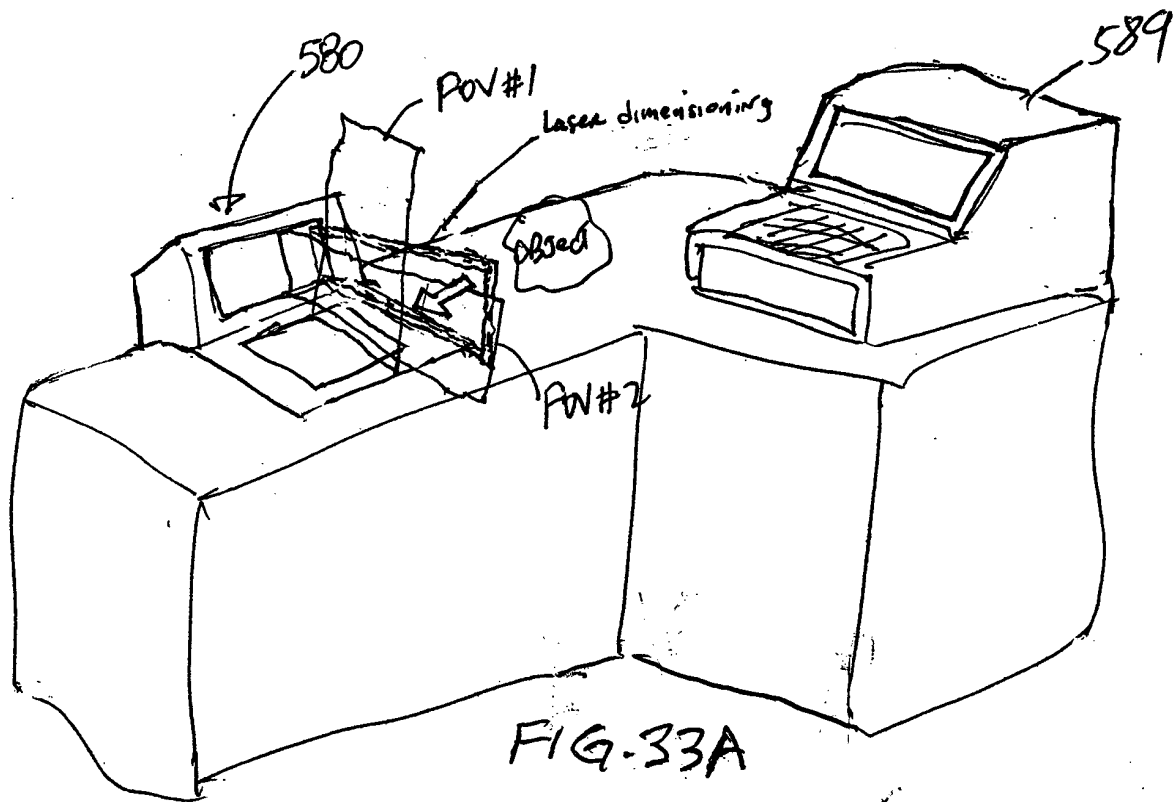


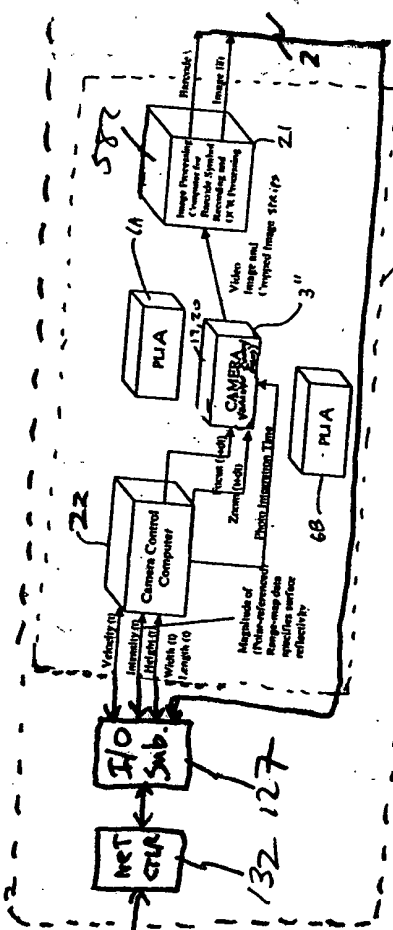
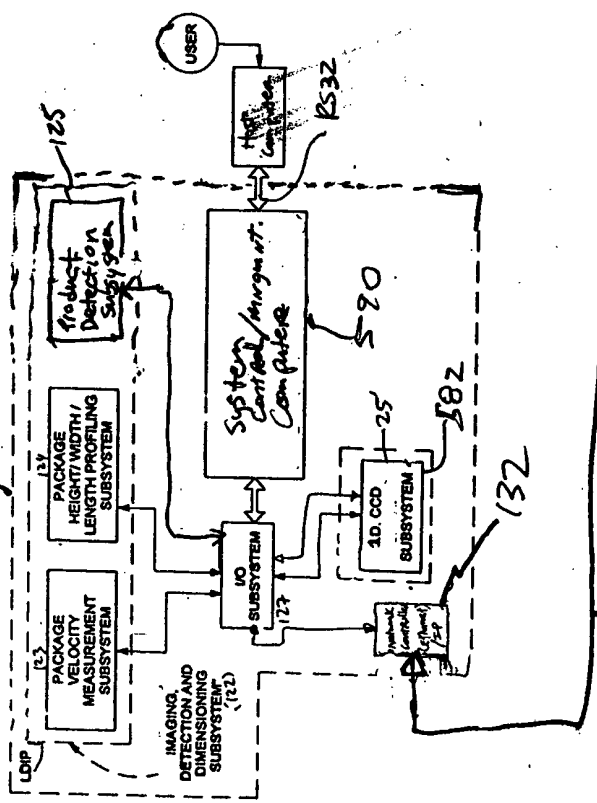
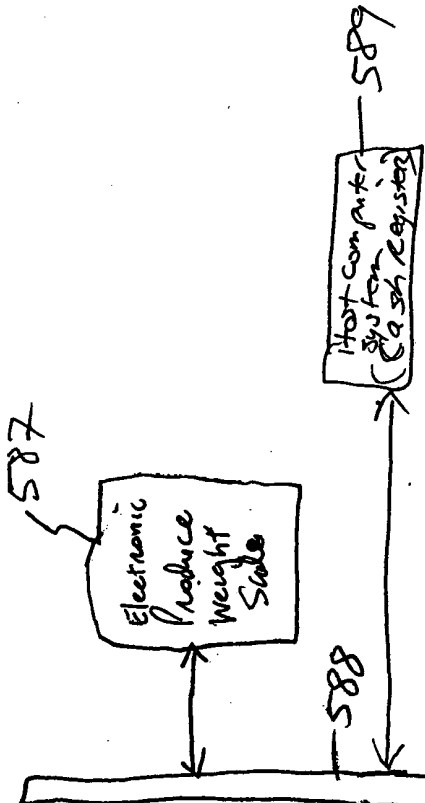
FIG. 31A

232/332



580

586B



586A

FIG. 33C

234/332

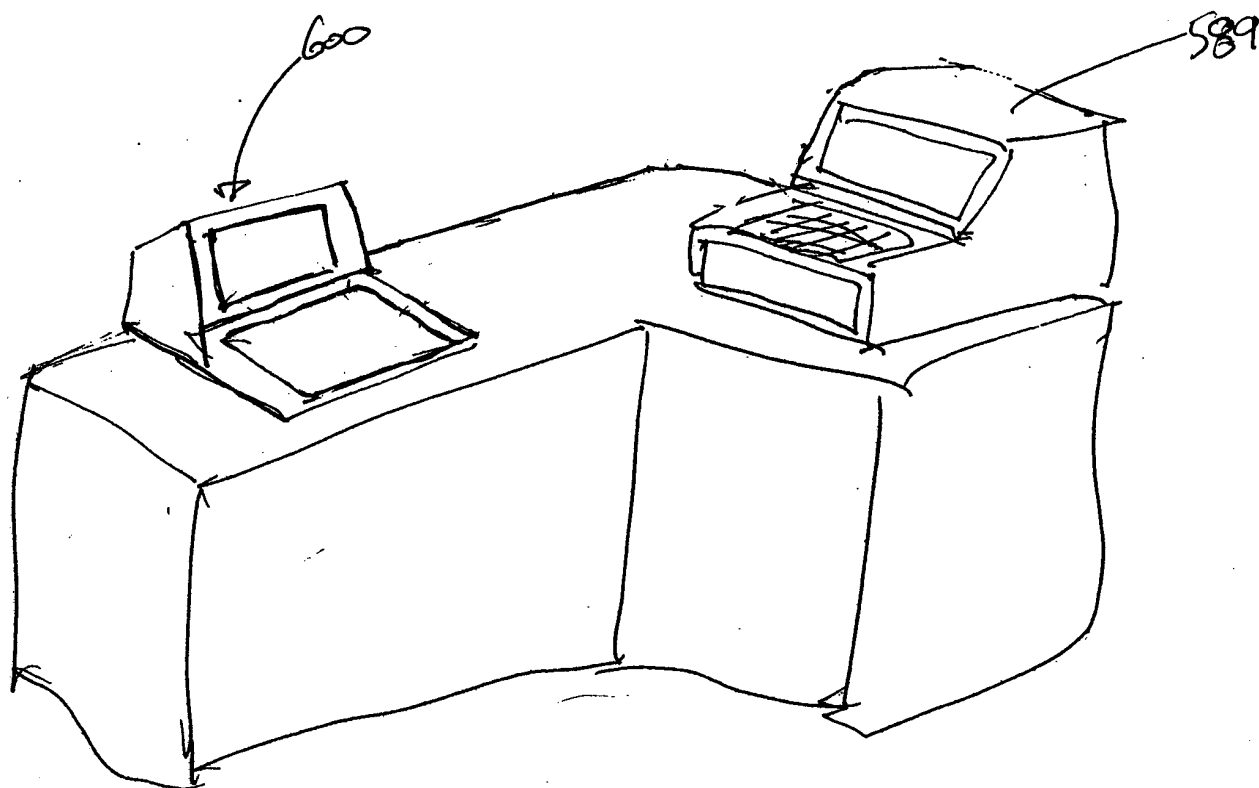


FIG. 34A

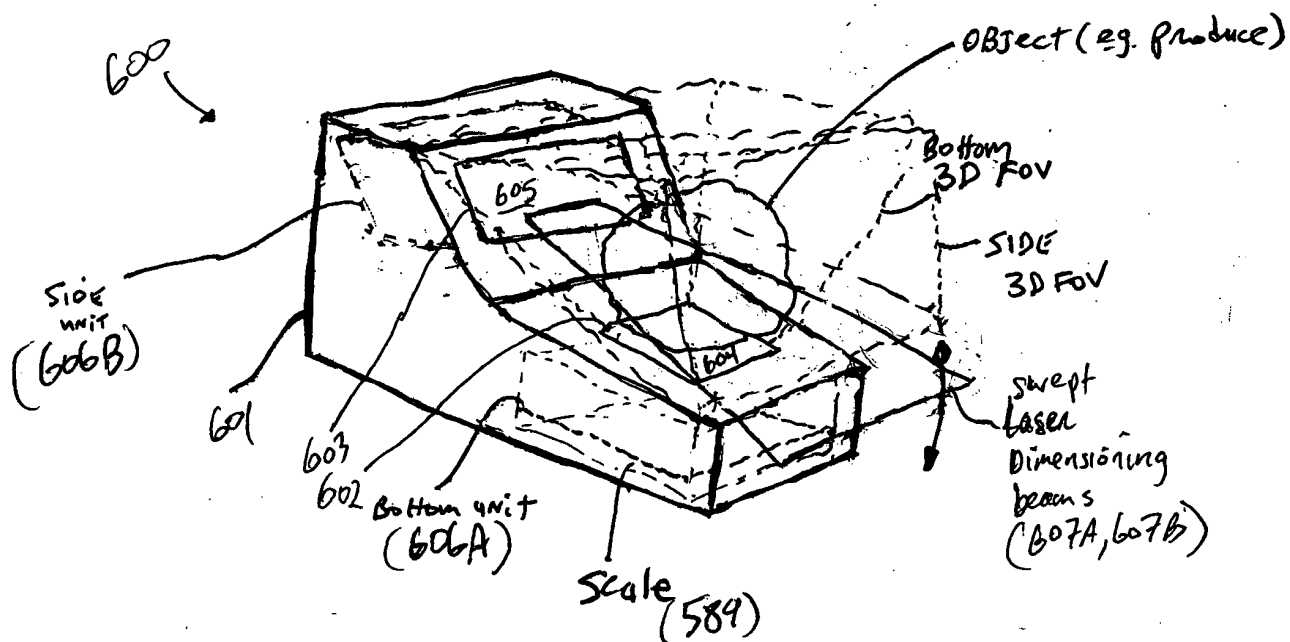
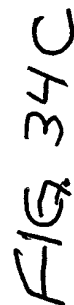
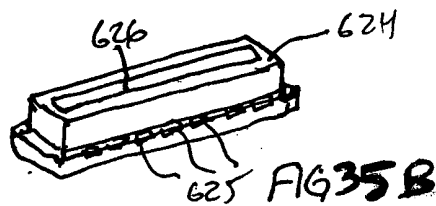
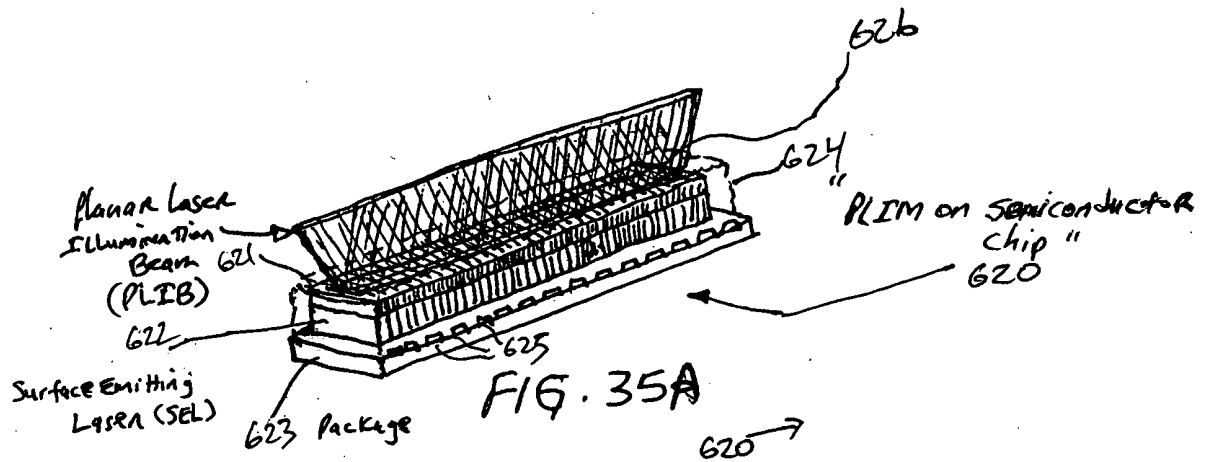


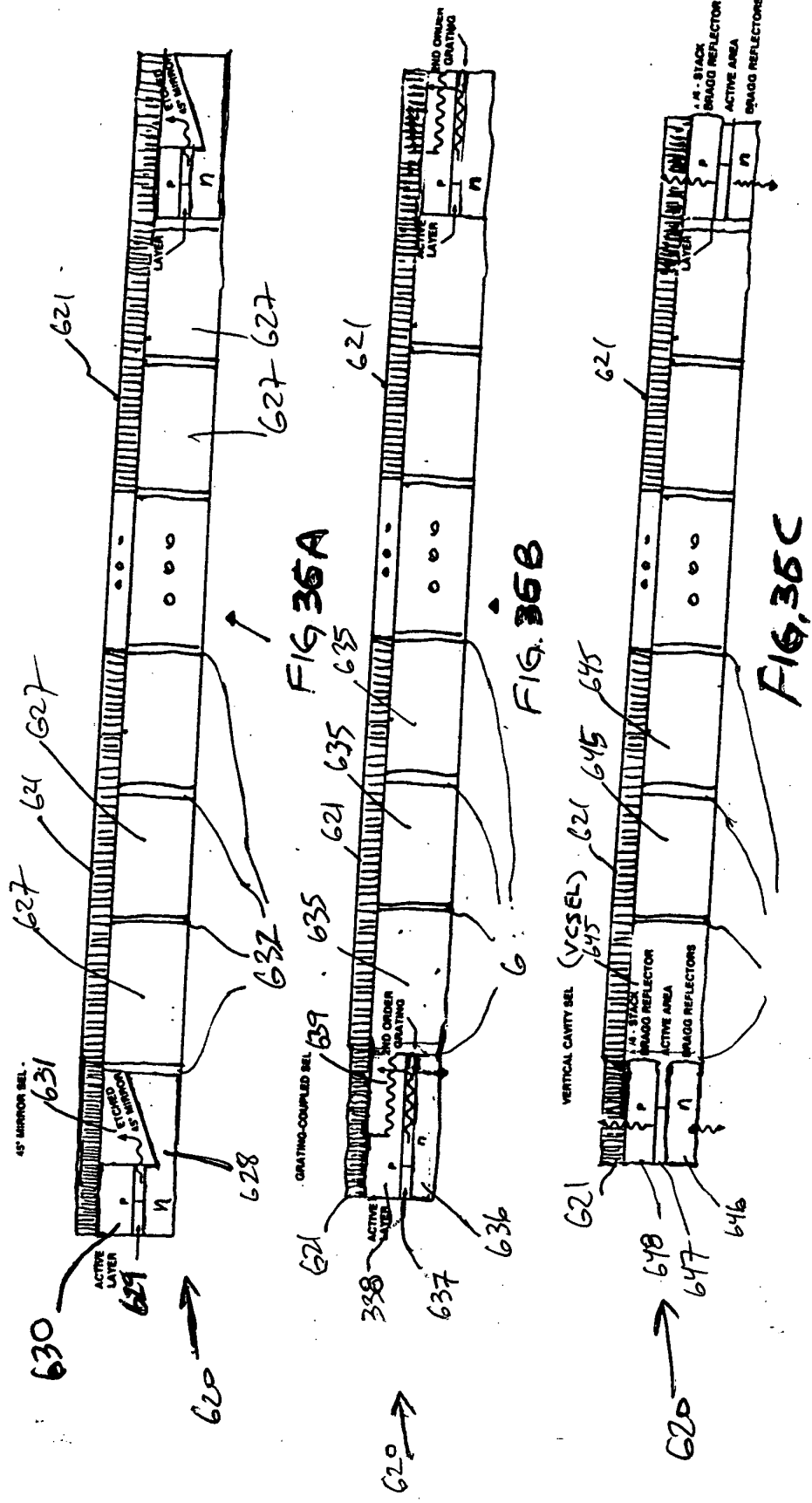
FIG. 34B

[illegible]

900



2025 RELEASE



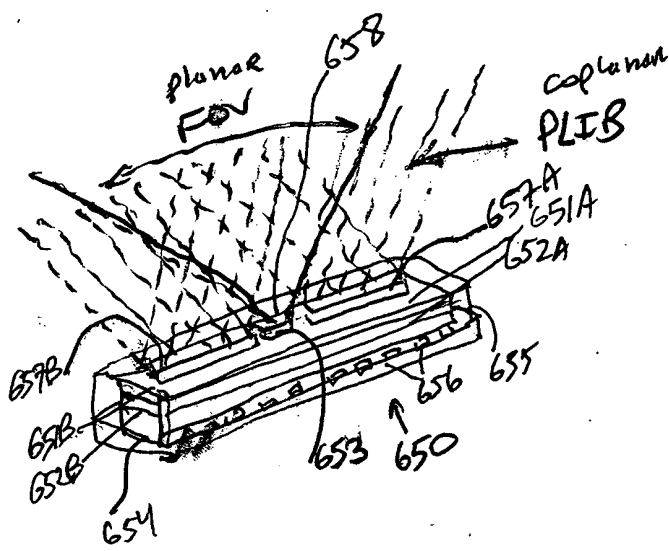


FIG. 37

360 →

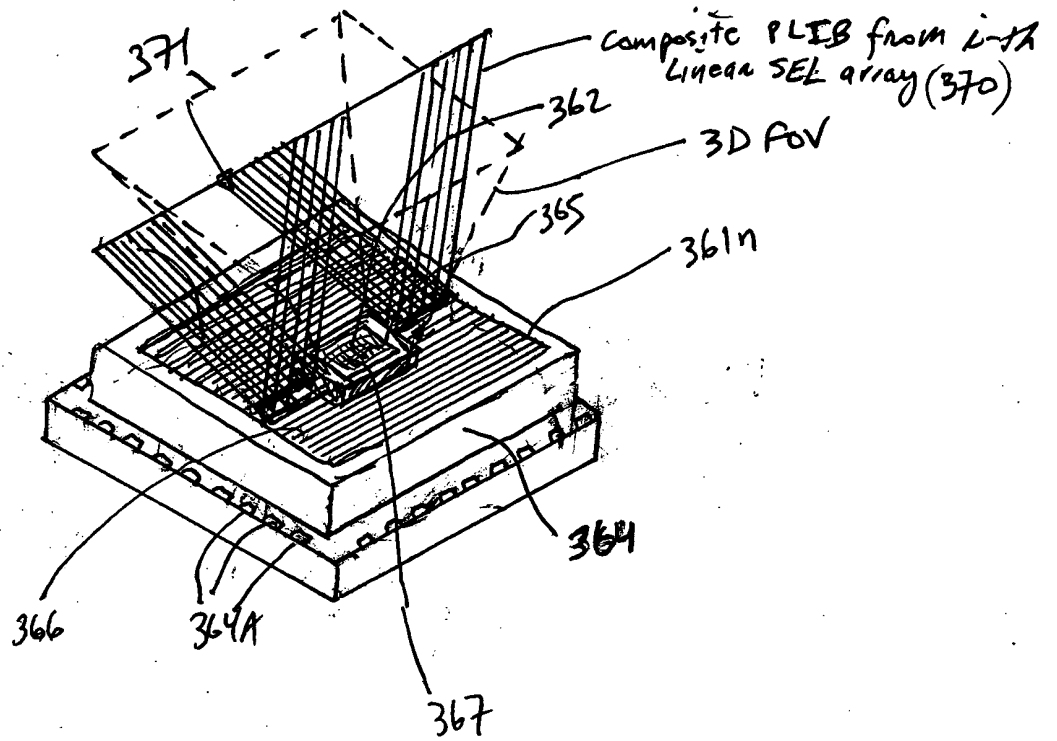


FIG. 38A

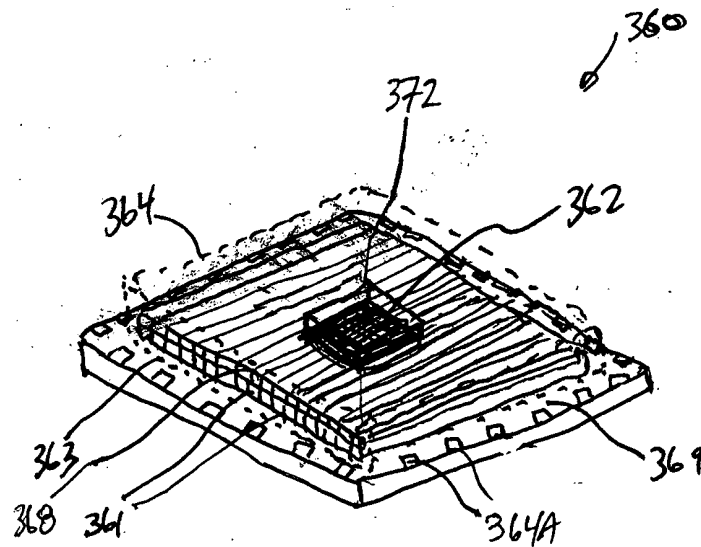


FIG. 38B

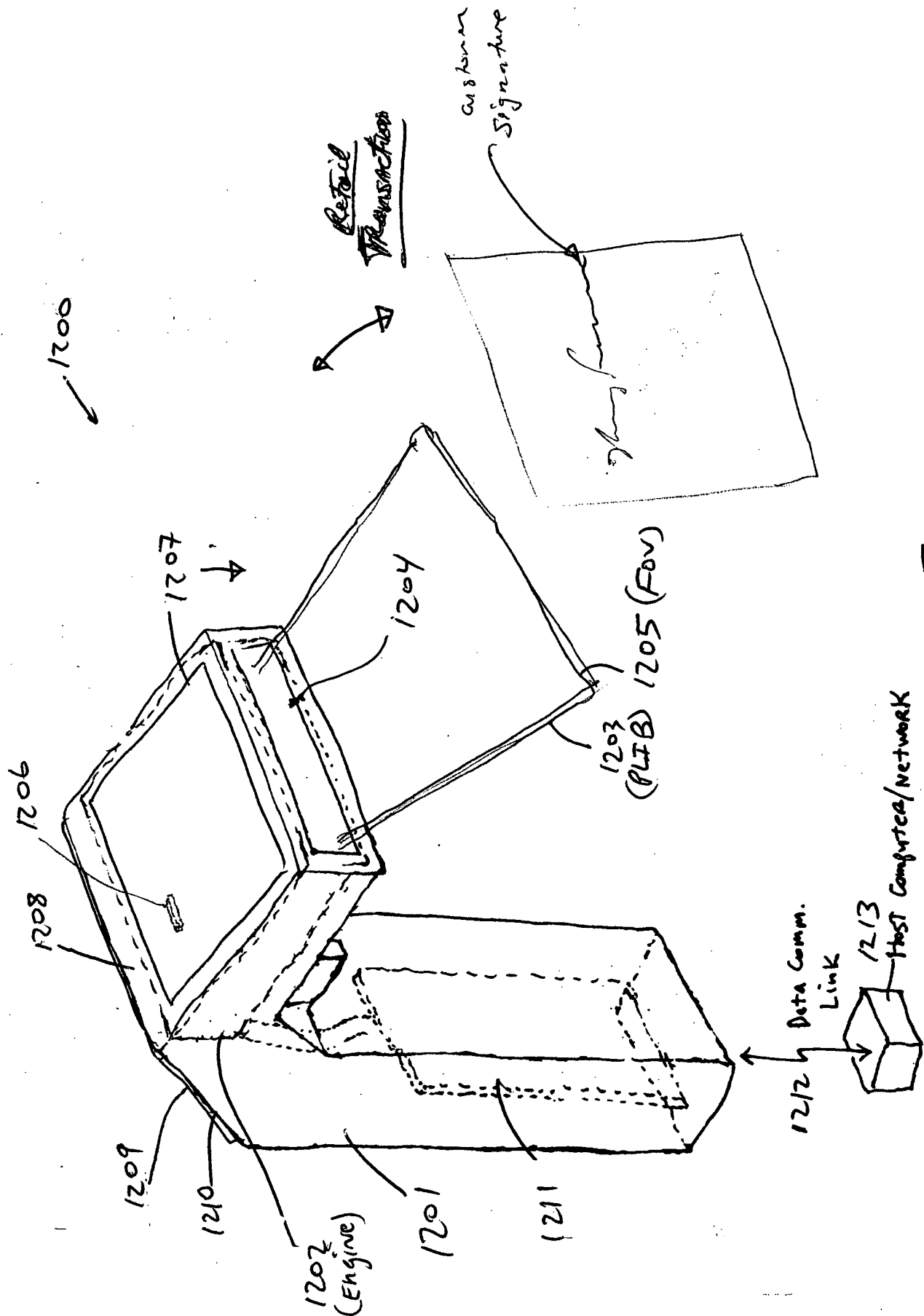


FIG. 39A

241/332

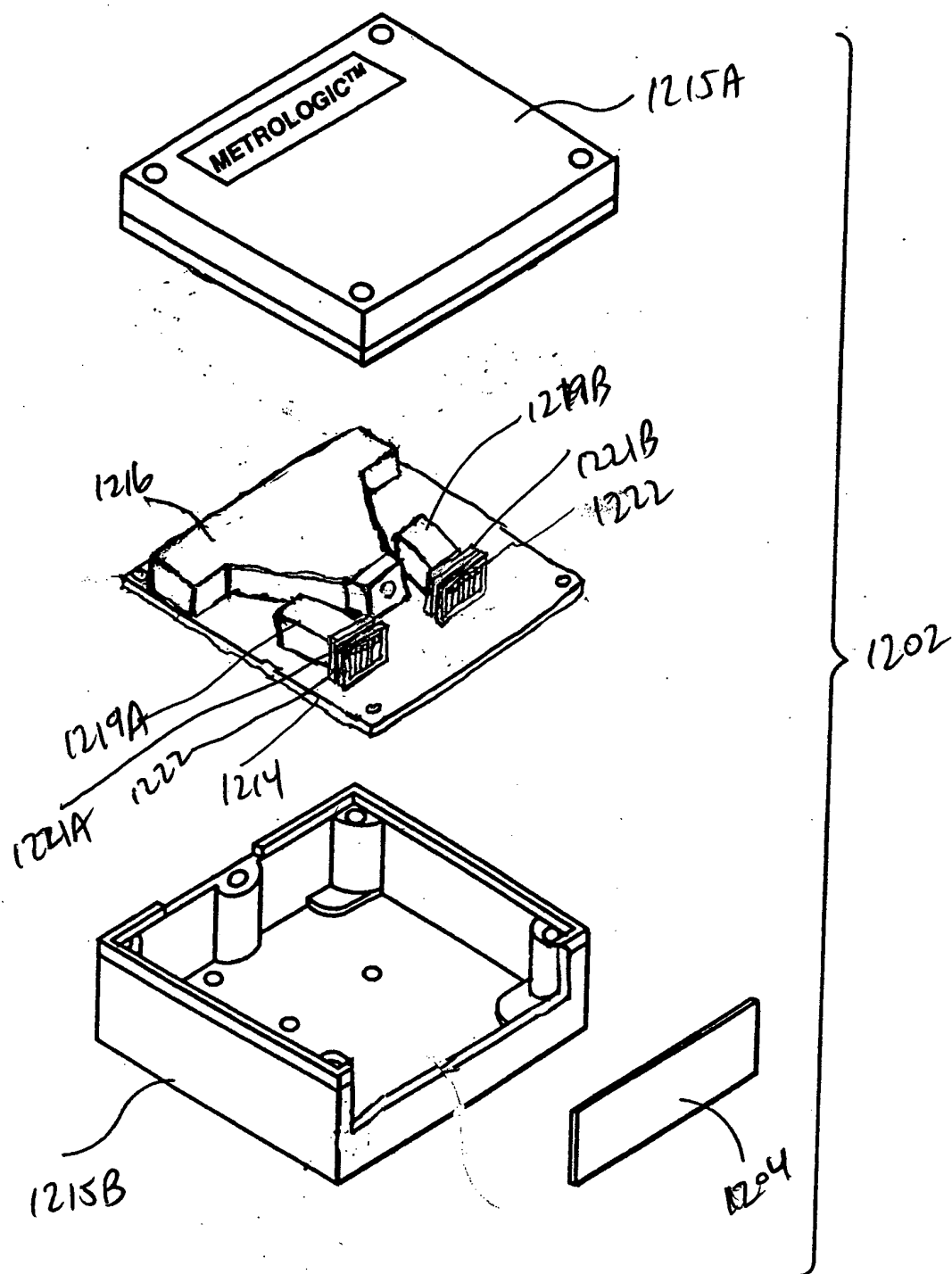


FIG. 39B

242/332

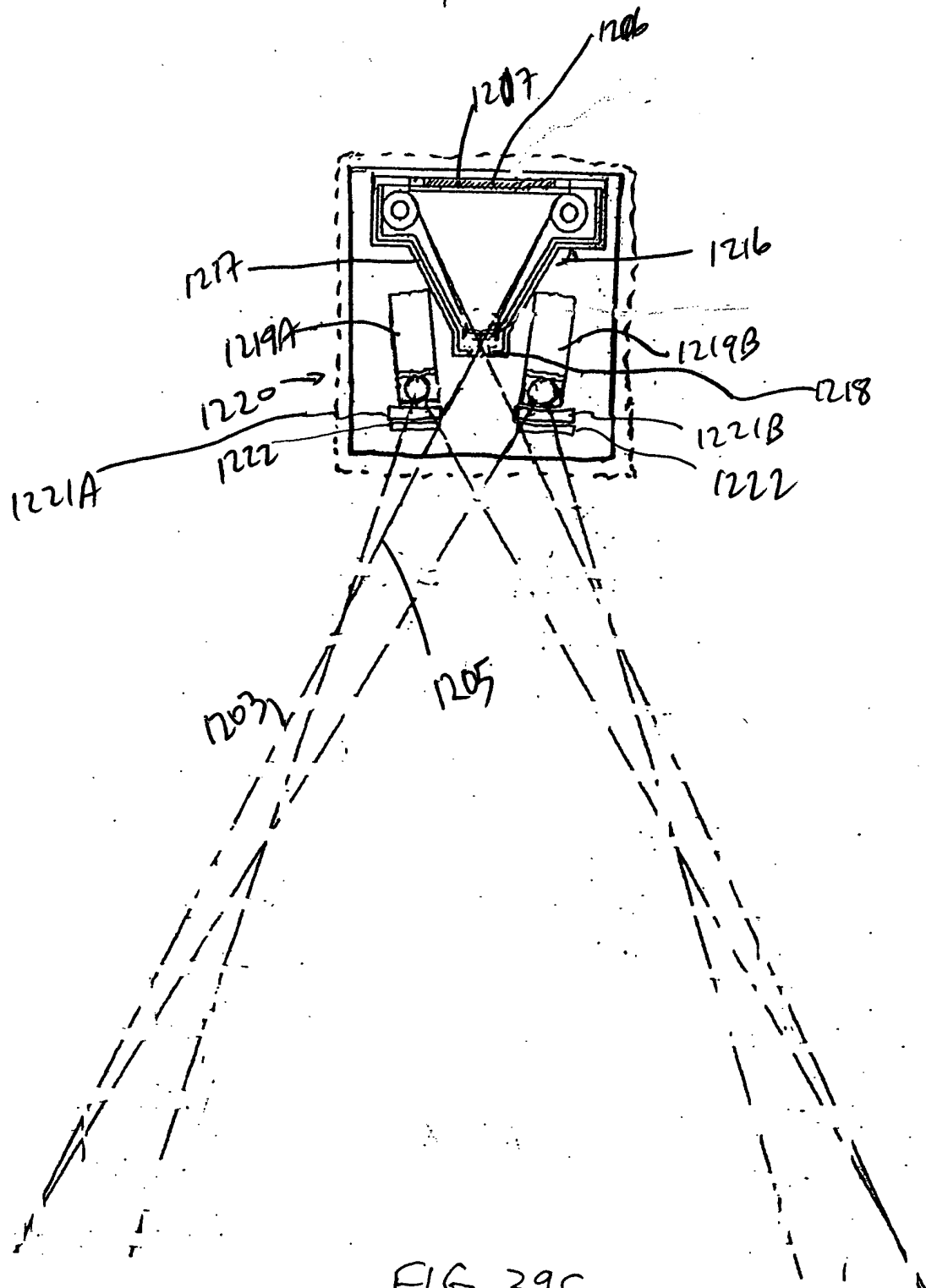


FIG. 39C

243/332

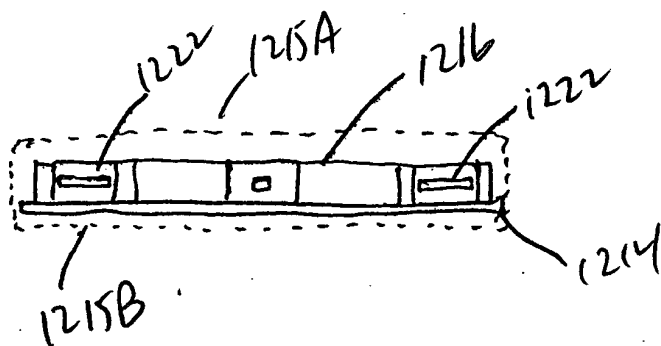


FIG. 39D

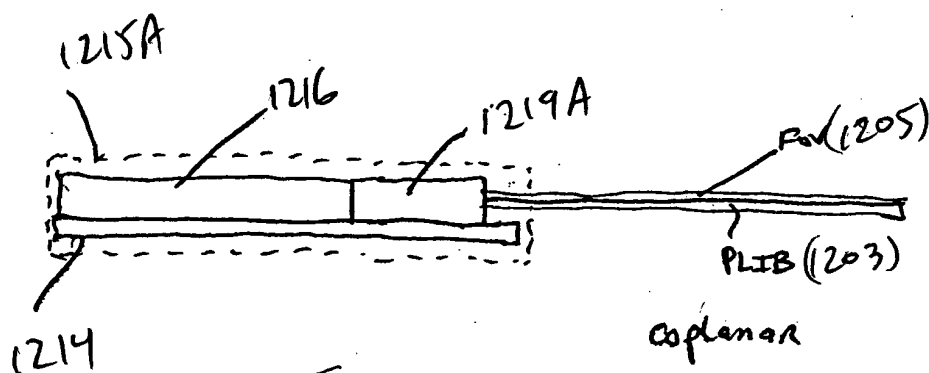


FIG. 39E

244/332

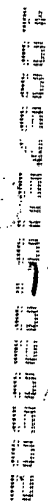


FIG. 40A1

245/332

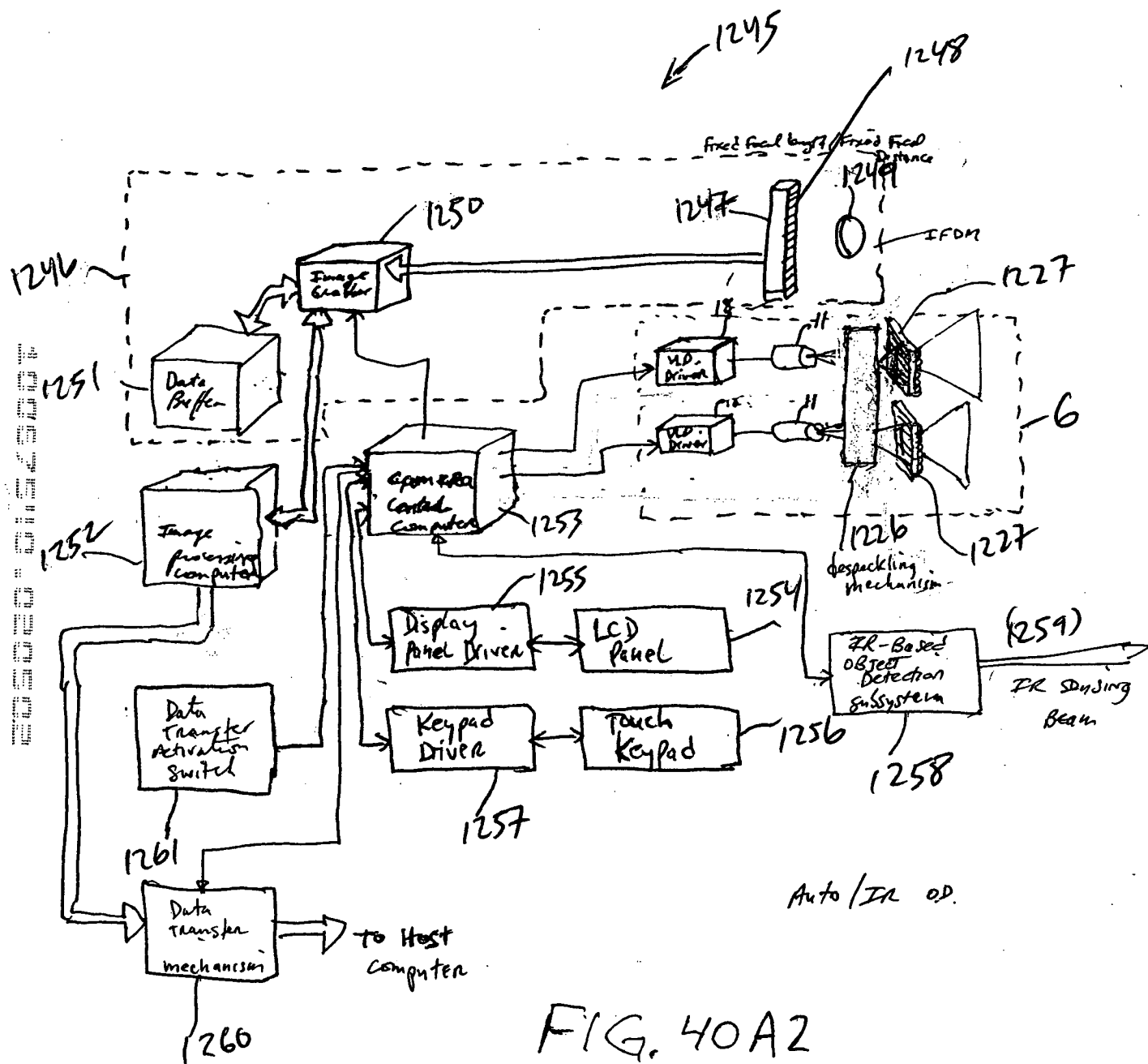
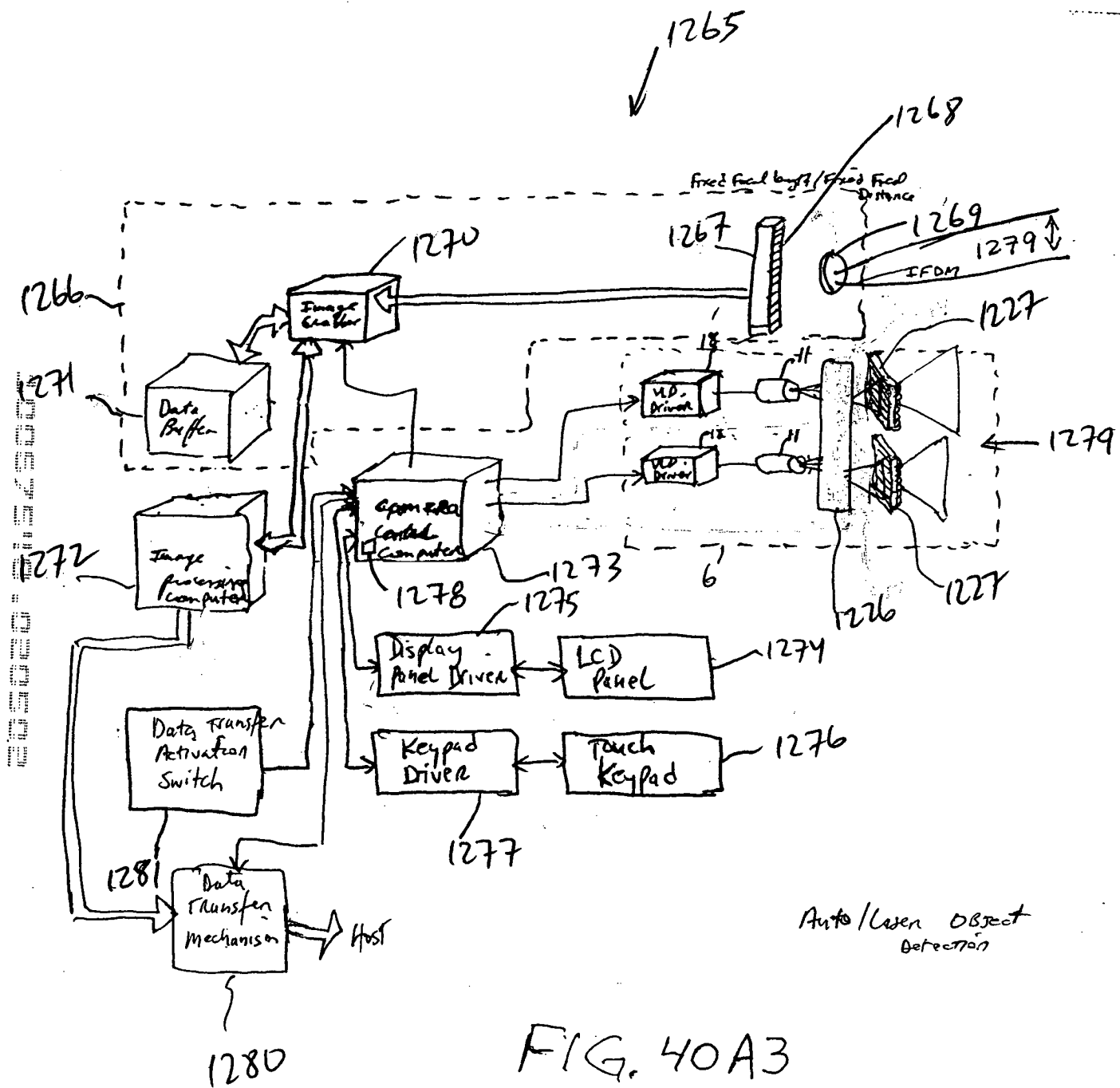
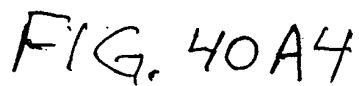


FIG. 40A2

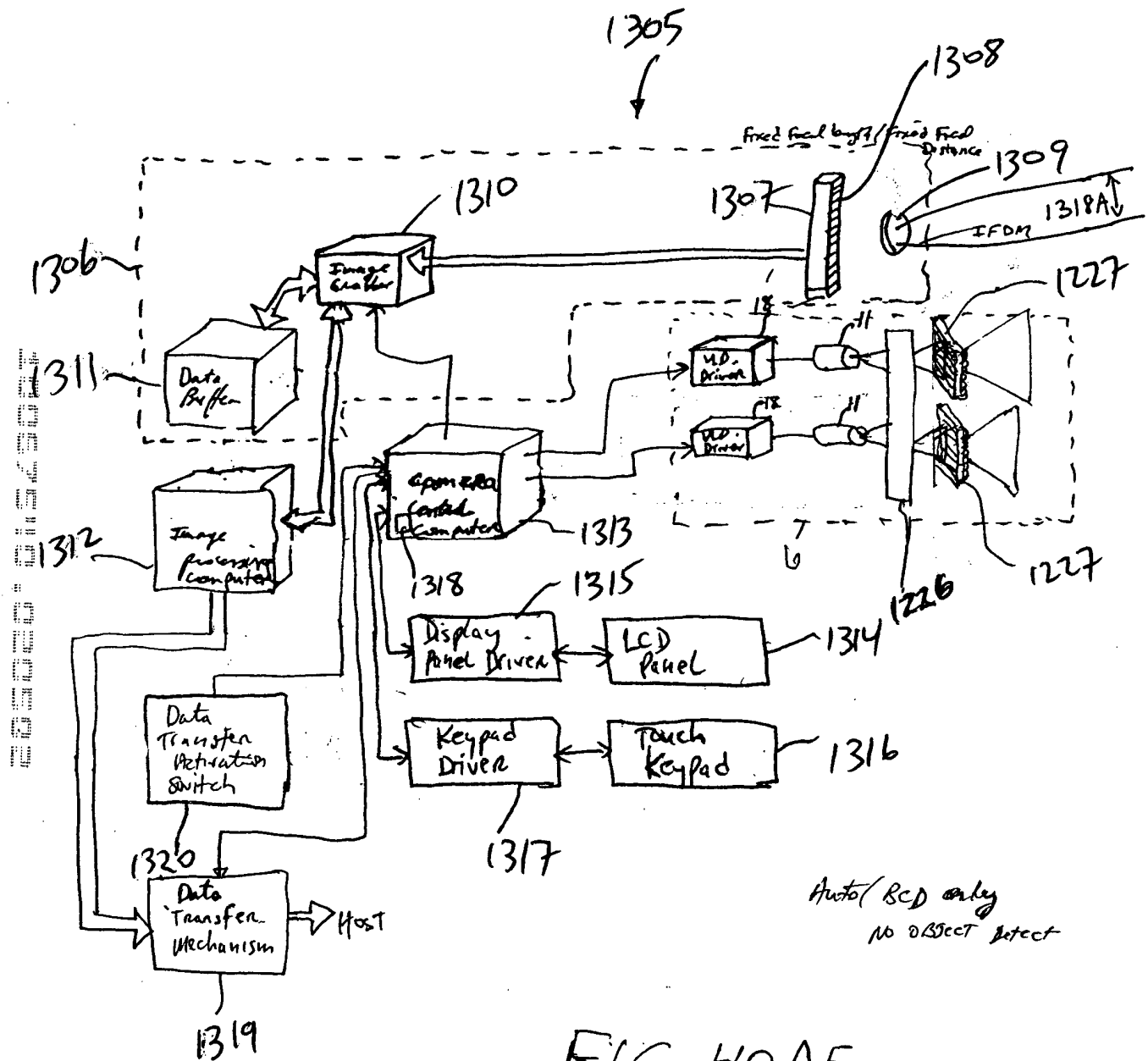
246/332



姓名	性别	年龄	职业	住址	电话	备注
王德胜	男	45	教师	XX路XX号	XXXX	
李小红	女	32	护士	XX街XX号	XXXX	
张小明	男	28	学生	XX村XX组	XXXX	
赵大刚	男	55	工人	XX厂XX车间	XXXX	
孙丽娟	女	40	医生	XX医院XX科	XXXX	
周国强	男	38	农民	XX乡XX村	XXXX	
吴小芳	女	25	职员	XX公司XX部	XXXX	
郑大伟	男	50	干部	XX局XX处	XXXX	
陈小红	女	35	记者	XX报社XX部	XXXX	
周小明	男	22	学生	XX大学XX系	XXXX	
吴大刚	男	48	工人	XX厂XX车间	XXXX	
孙丽娟	女	30	教师	XX学校XX班	XXXX	
周国强	男	52	农民	XX乡XX村	XXXX	
吴小芳	女	28	职员	XX公司XX部	XXXX	
郑大伟	男	45	干部	XX局XX处	XXXX	
陈小红	女	38	记者	XX报社XX部	XXXX	
周小明	男	25	学生	XX大学XX系	XXXX	
吴大刚	男	55	工人	XX厂XX车间	XXXX	
孙丽娟	女	32	教师	XX学校XX班	XXXX	
周国强	男	40	农民	XX乡XX村	XXXX	
吴小芳	女	22	职员	XX公司XX部	XXXX	
郑大伟	男	48	干部	XX局XX处	XXXX	
陈小红	女	35	记者	XX报社XX部	XXXX	
周小明	男	28	学生	XX大学XX系	XXXX	
吴大刚	男	50	工人	XX厂XX车间	XXXX	
孙丽娟	女	30	教师	XX学校XX班	XXXX	
周国强	男	52	农民	XX乡XX村	XXXX	
吴小芳	女	28	职员	XX公司XX部	XXXX	
郑大伟	男	45	干部	XX局XX处	XXXX	
陈小红	女	38	记者	XX报社XX部	XXXX	
周小明	男	25	学生	XX大学XX系	XXXX	
吴大刚	男	55	工人	XX厂XX车间	XXXX	
孙丽娟	女	32	教师	XX学校XX班	XXXX	
周国强	男	40	农民	XX乡XX村	XXXX	
吴小芳	女	22	职员	XX公司XX部	XXXX	
郑大伟	男	48	干部	XX局XX处	XXXX	
陈小红	女	35	记者	XX报社XX部	XXXX	
周小明	男	28	学生	XX大学XX系	XXXX	
吴大刚	男	50	工人	XX厂XX车间	XXXX	
孙丽娟	女	30	教师	XX学校XX班	XXXX	
周国强	男	52	农民	XX乡XX村	XXXX	
吴小芳	女	28	职员	XX公司XX部	XXXX	
郑大伟	男	45	干部	XX局XX处	XXXX	
陈小红	女	38	记者	XX报社XX部	XXXX	
周小明	男	25	学生	XX大学XX系	XXXX	
吴大刚	男	55	工人	XX厂XX车间	XXXX	
孙丽娟	女	32	教师	XX学校XX班	XXXX	
周国强	男	40	农民	XX乡XX村	XXXX	
吴小芳	女	22	职员	XX公司XX部	XXXX	
郑大伟	男	48	干部	XX局XX处	XXXX	
陈小红	女	35	记者	XX报社XX部	XXXX	
周小明	男	28	学生	XX大学XX系	XXXX	
吴大刚	男	50	工人	XX厂XX车间	XXXX	
孙丽娟	女	30	教师	XX学校XX班	XXXX	
周国强	男	52	农民	XX乡XX村	XXXX	
吴小芳	女	28	职员	XX公司XX部	XXXX	
郑大伟	男	45	干部	XX局XX处	XXXX	
陈小红	女	38	记者	XX报社XX部	XXXX	
周小明	男	25	学生	XX大学XX系	XXXX	
吴大刚	男	55	工人	XX厂XX车间	XXXX	
孙丽娟	女	32	教师	XX学校XX班	XXXX	
周国强	男	40	农民	XX乡XX村	XXXX	
吴小芳	女	22	职员	XX公司XX部	XXXX	
郑大伟	男	48	干部	XX局XX处	XXXX	
陈小红	女	35	记者	XX报社XX部	XXXX	
周小明	男	28	学生	XX大学XX系	XXXX	
吴大刚	男	50	工人	XX厂XX车间	XXXX	
孙丽娟	女	30	教师			



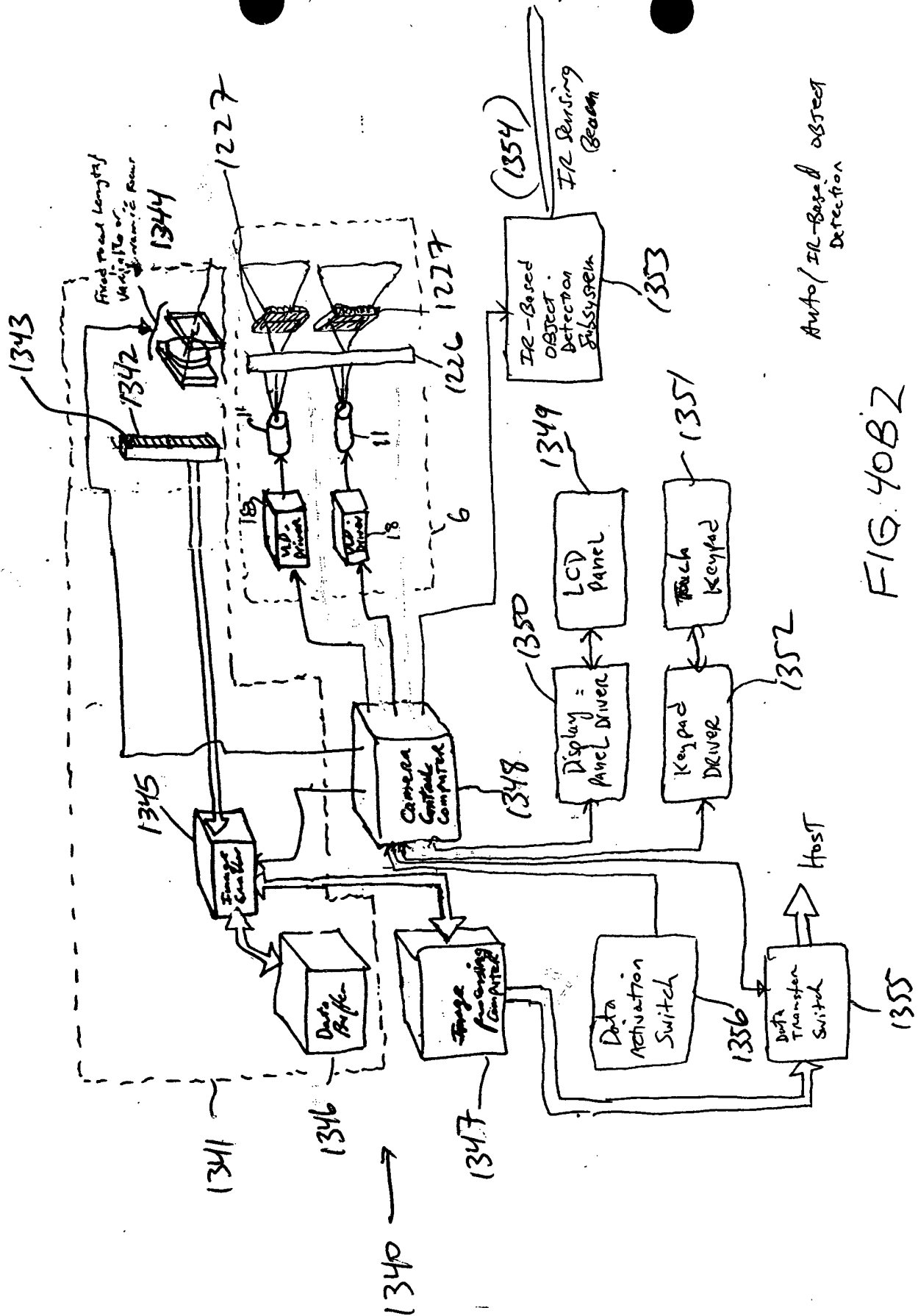
248/332.



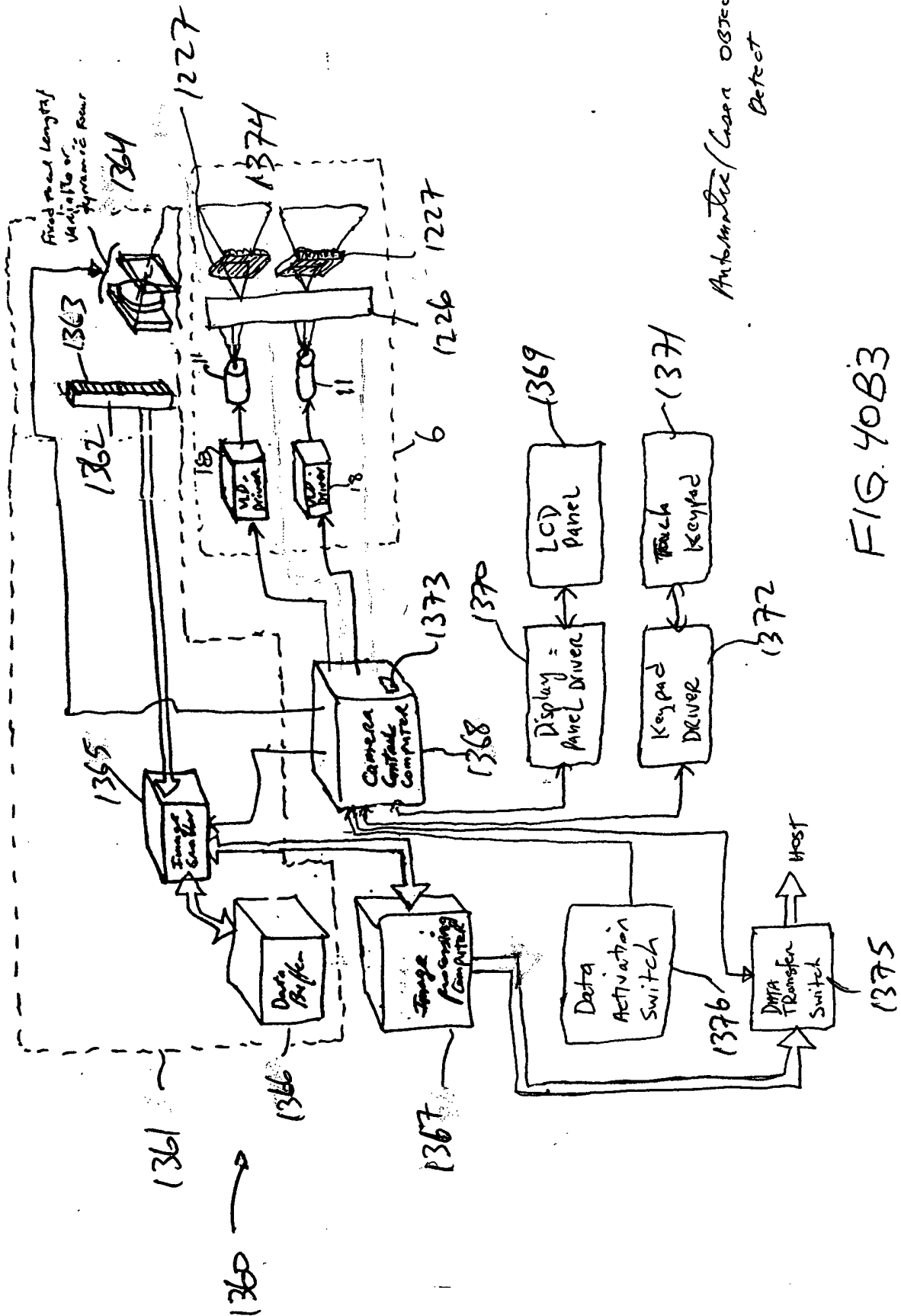
Manual activation



FIG. 40B1



25/332



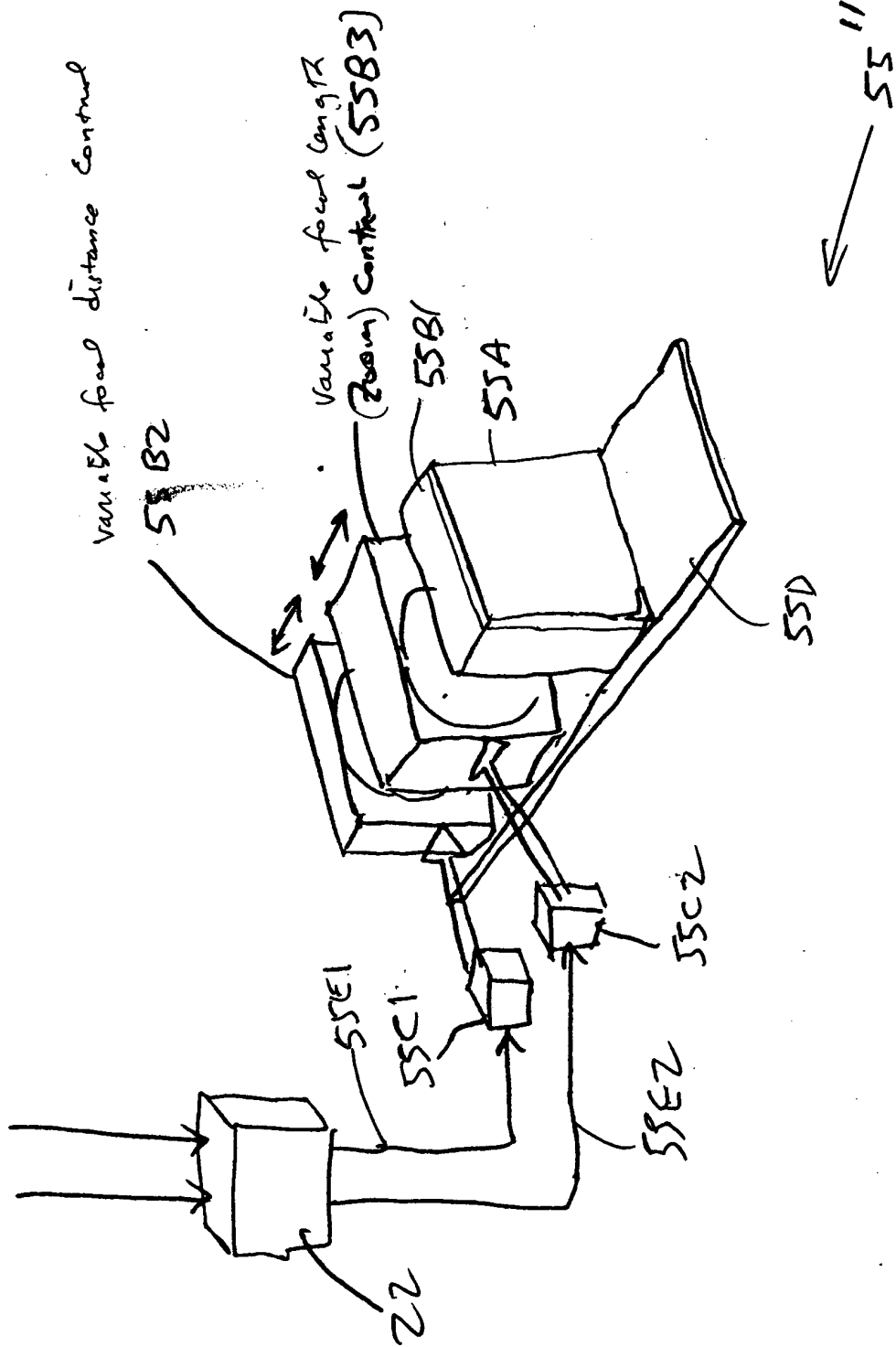


FIG. 6C4

188/332

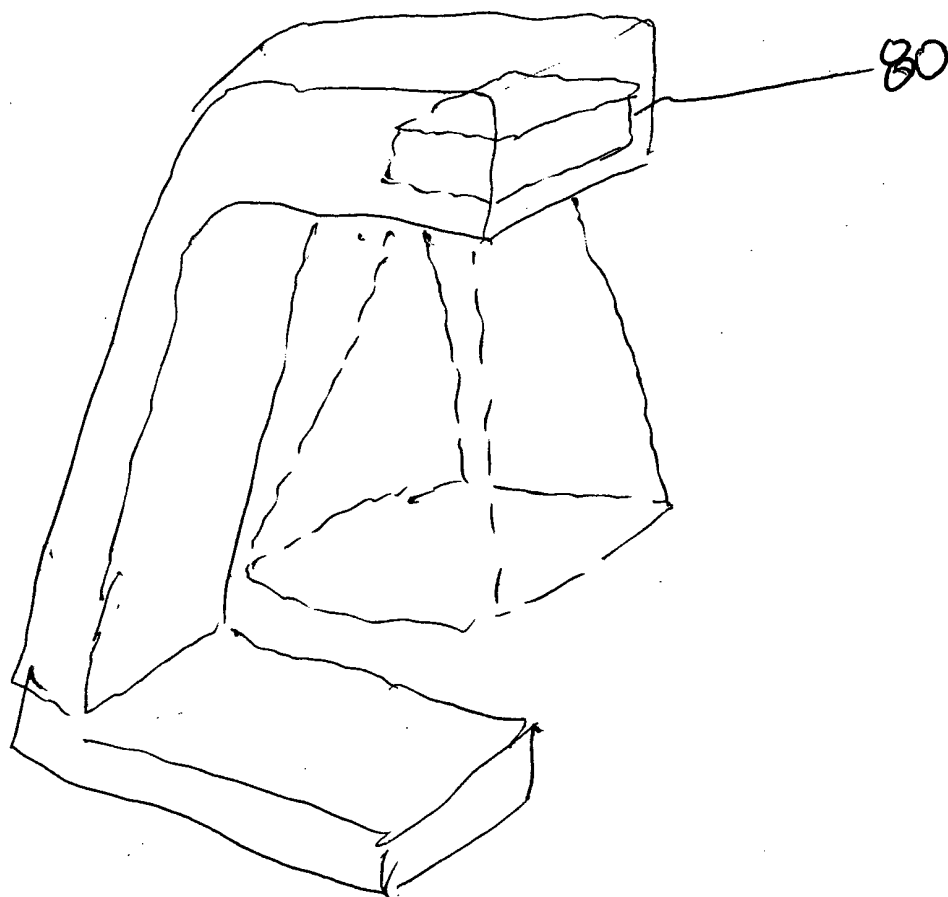
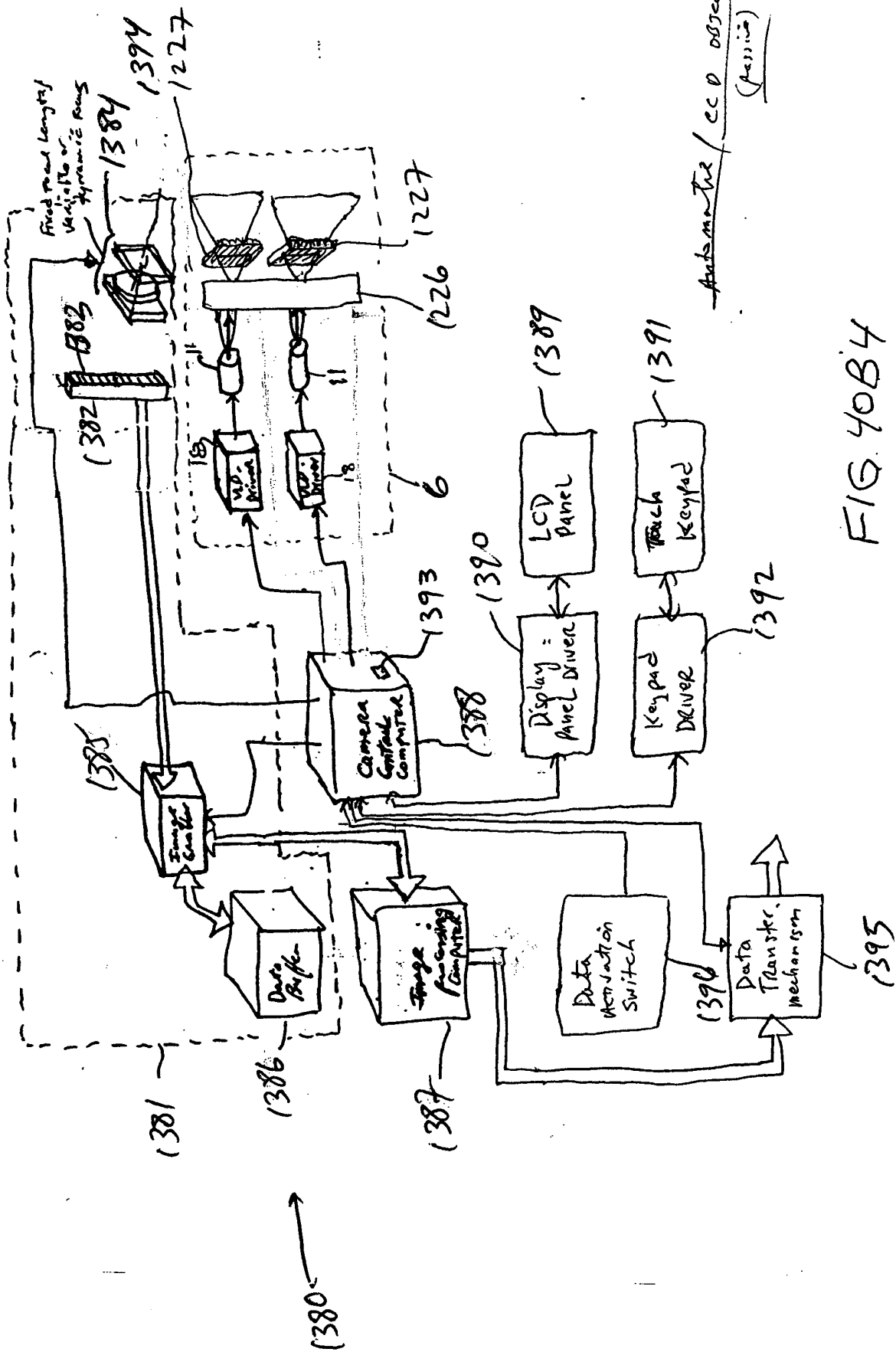


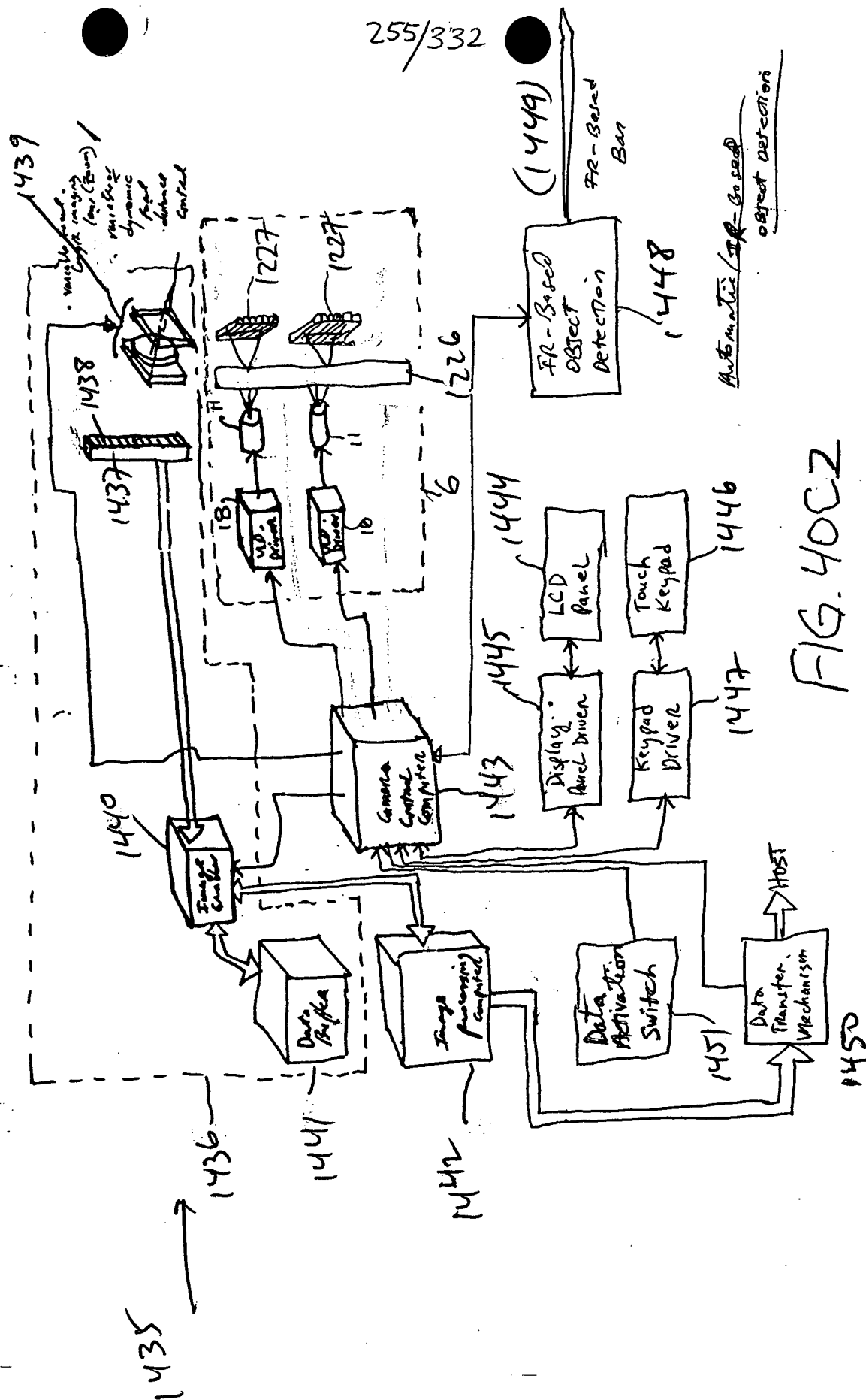
FIG. 6C5

252/332

Automatic / CCD object detect.
(passive)

252/332





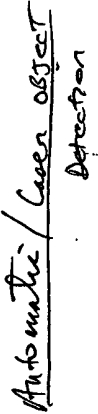


FIG. 40C3

257/332

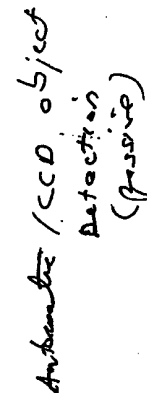


FIG. 40C4

1490

1495 →

1499

1509

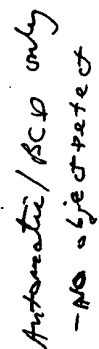


FIG. 40C5

Q151

260/332

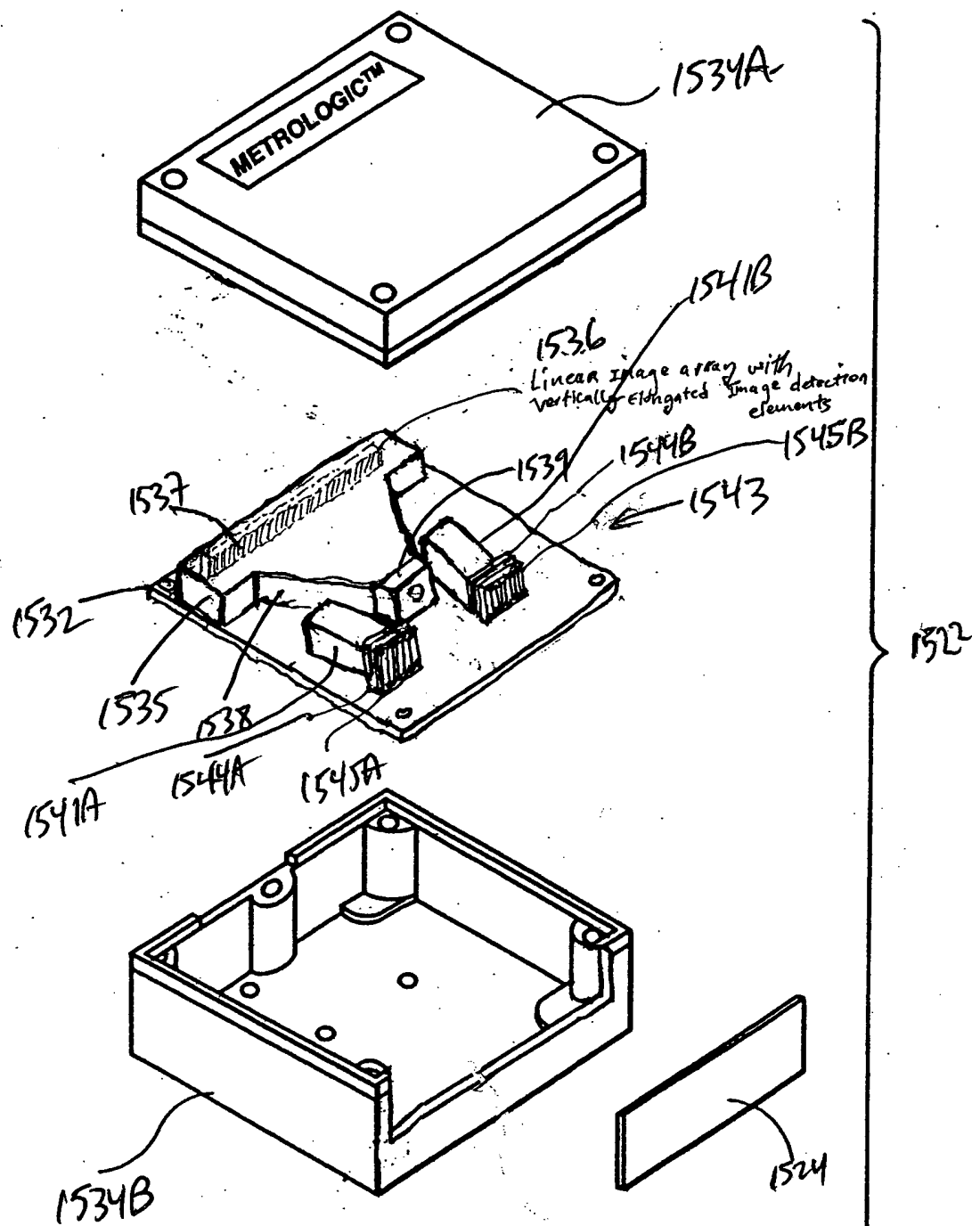


FIG. 41B

261/332

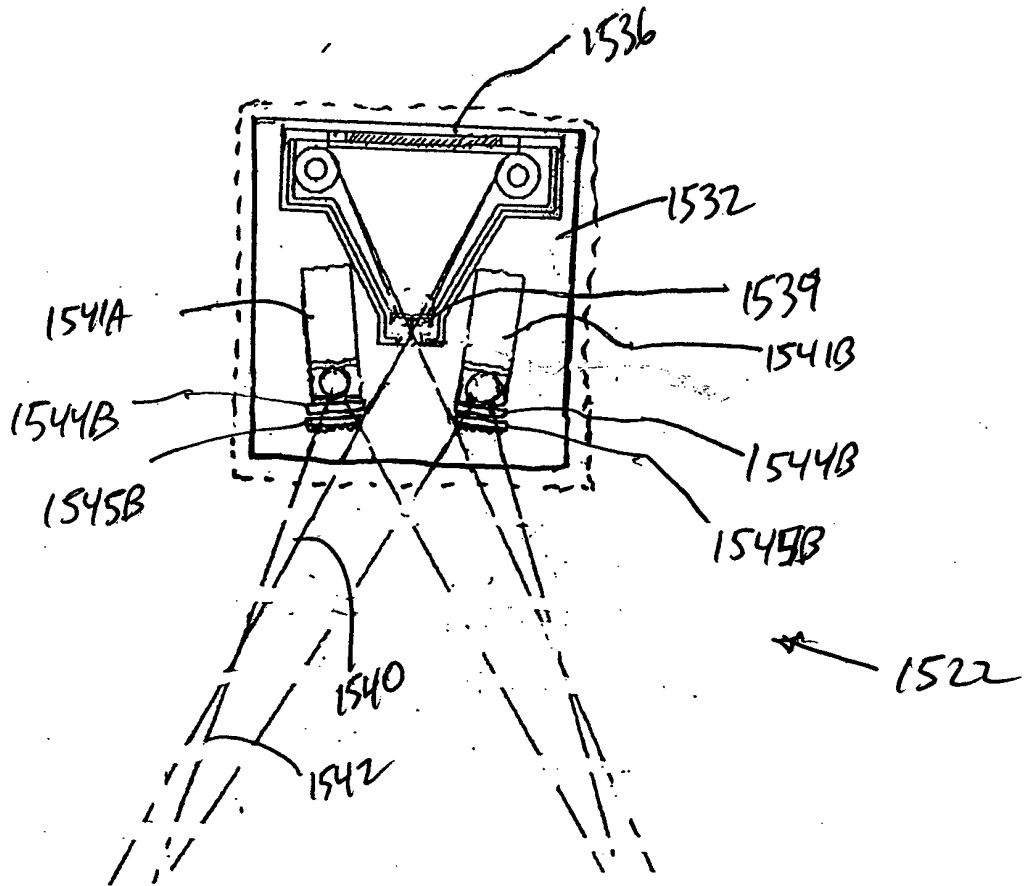


FIG. 41C

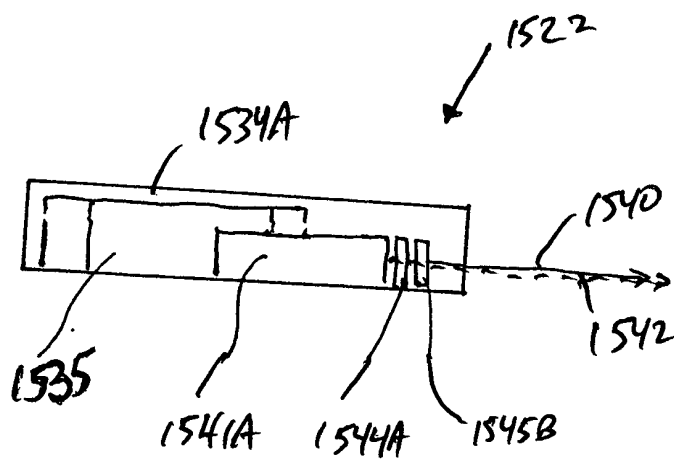
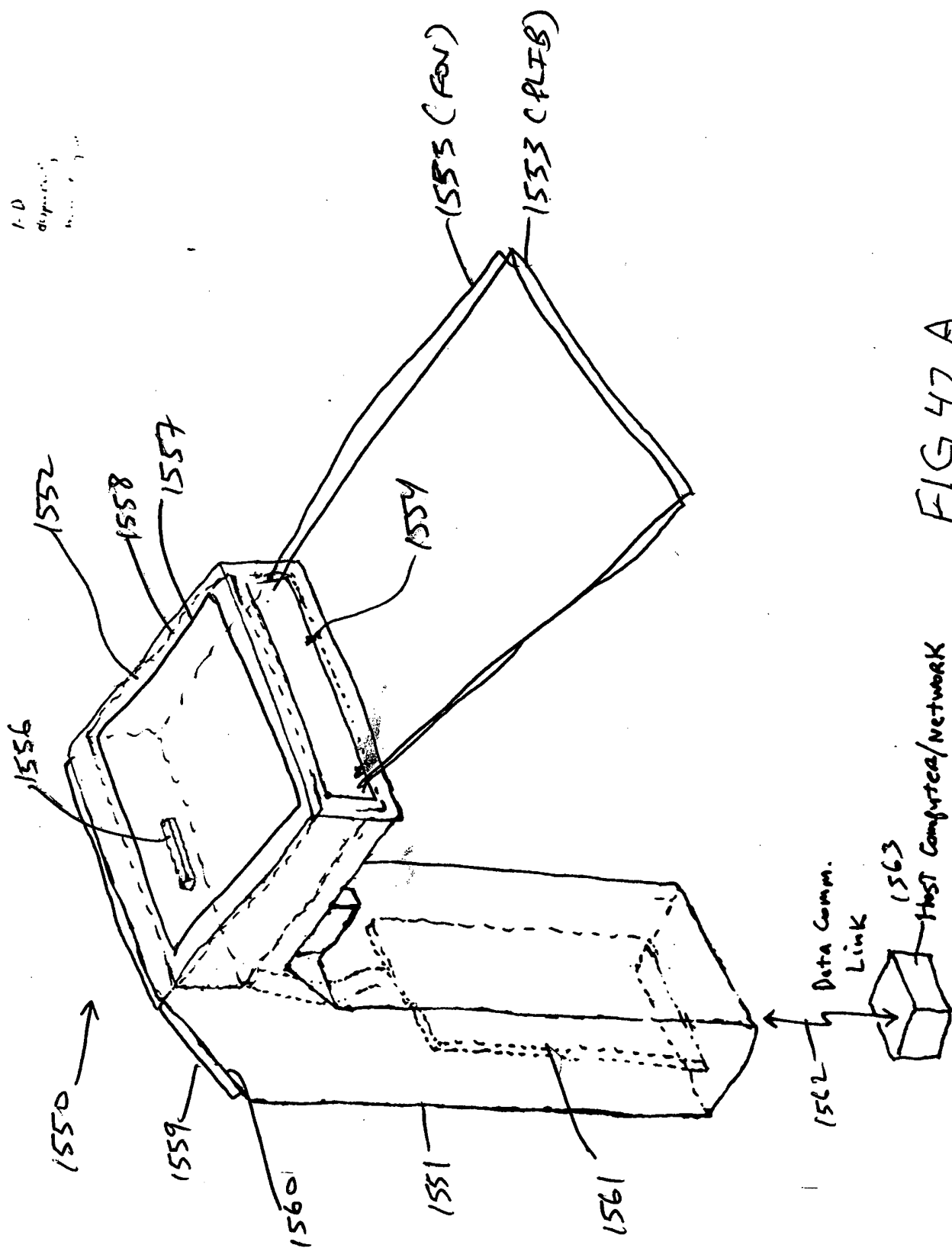


FIG. 41D

262/332

1-D
disposition;
... ..



263/332

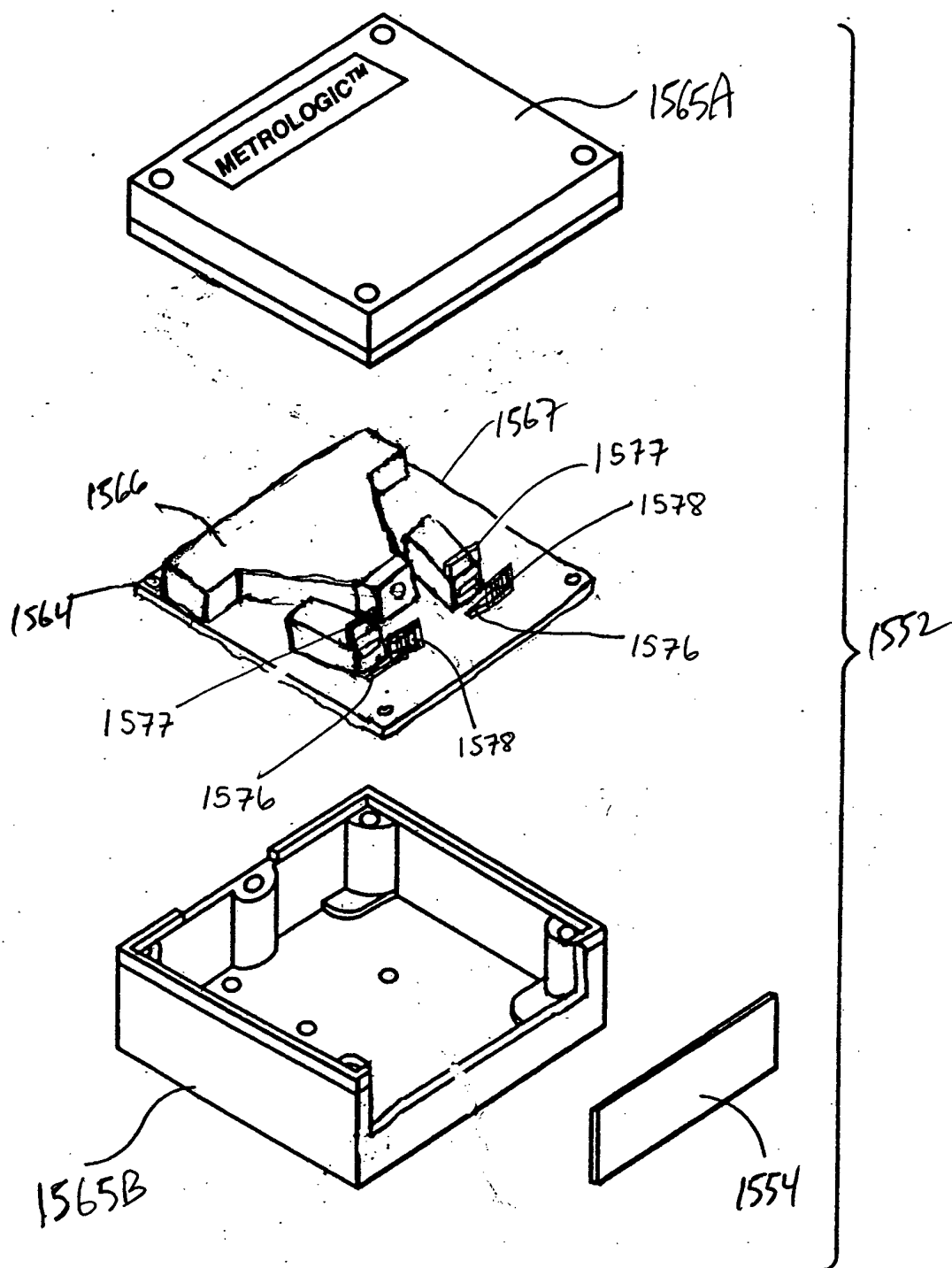


FIG. 42B

264/332

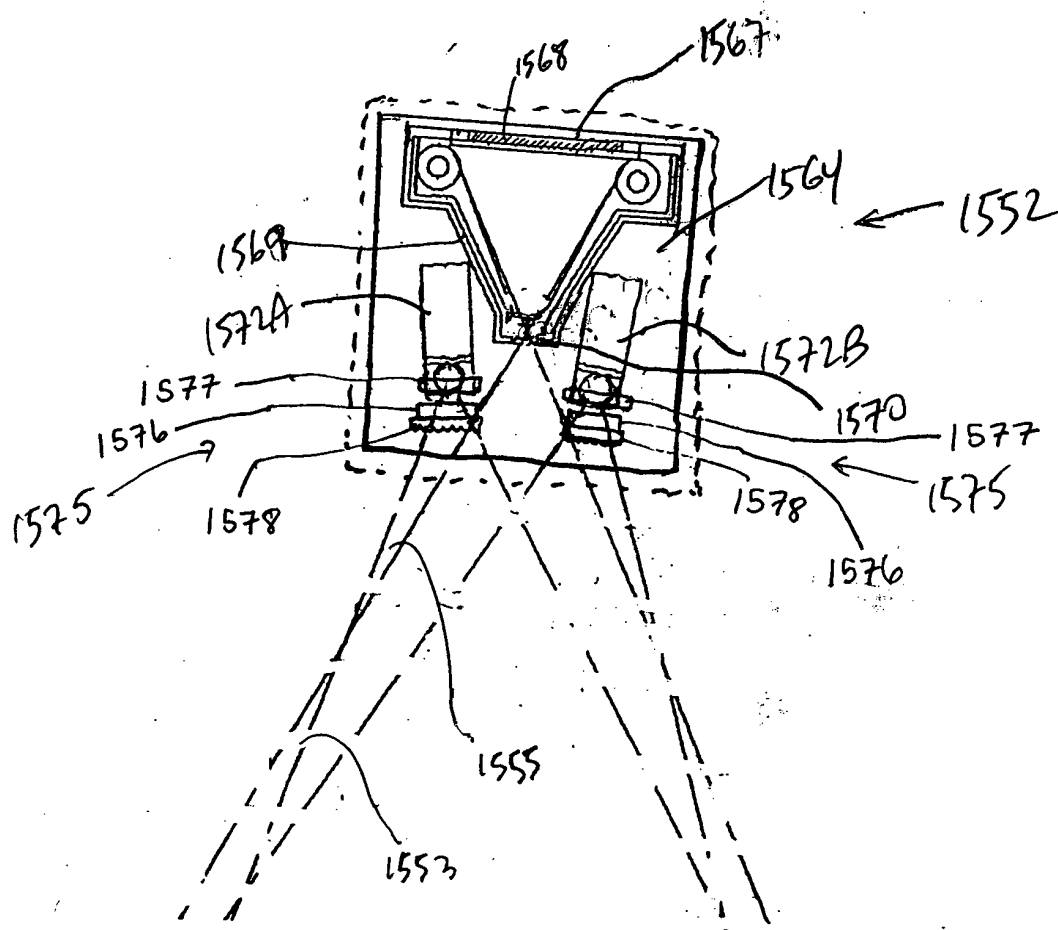


FIG. 42C

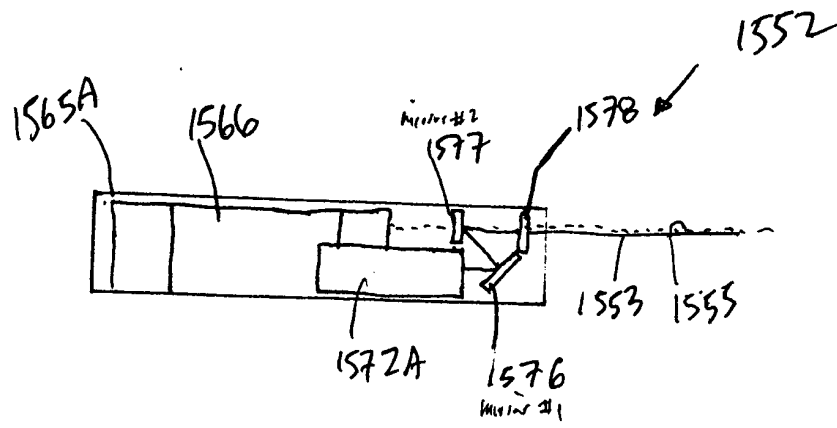
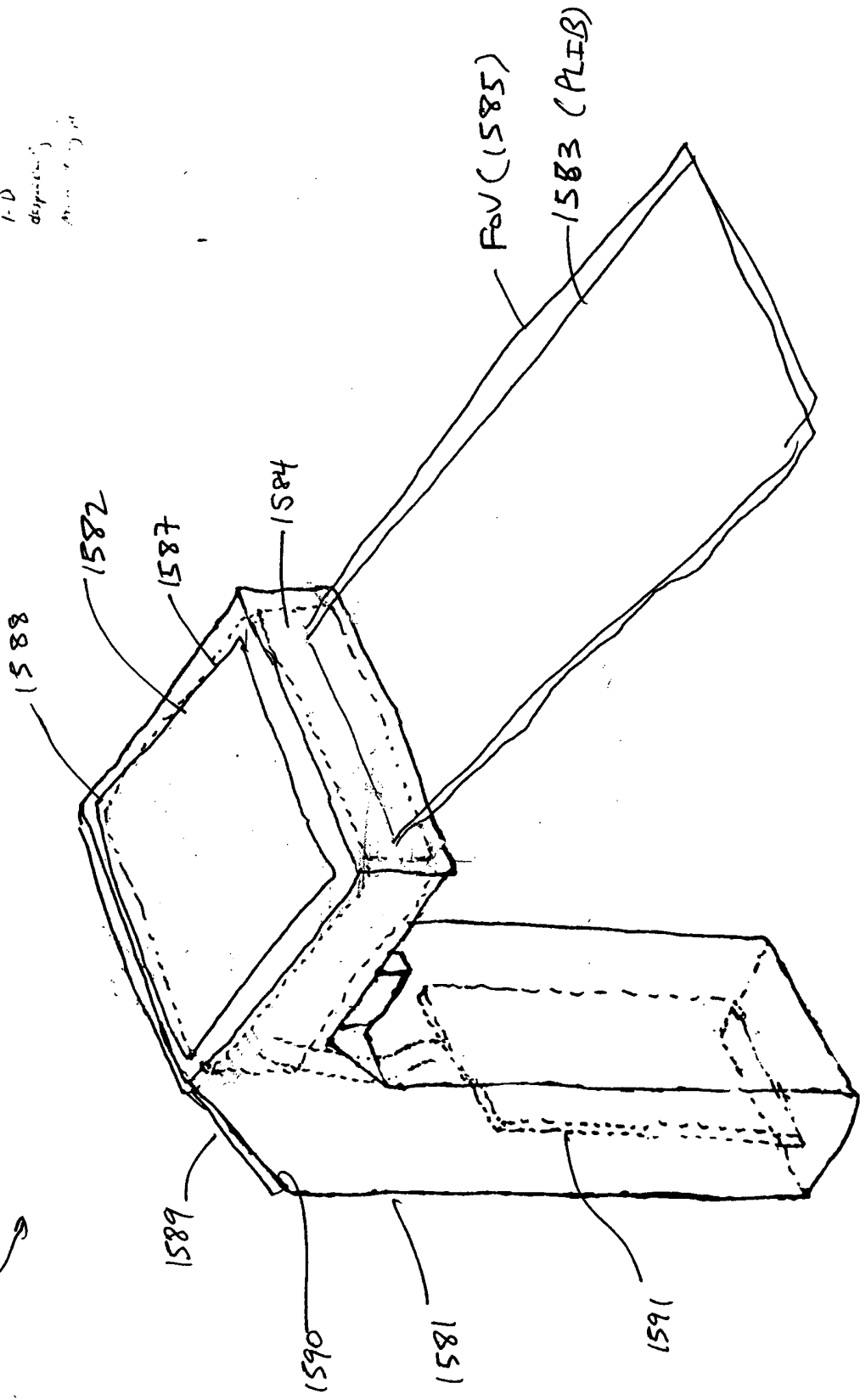


FIG. 42D

1-D
displaying
information

1580



Host Computer/Network

Data Comm.
Link

1593

1592

FIG. 43A

266/332

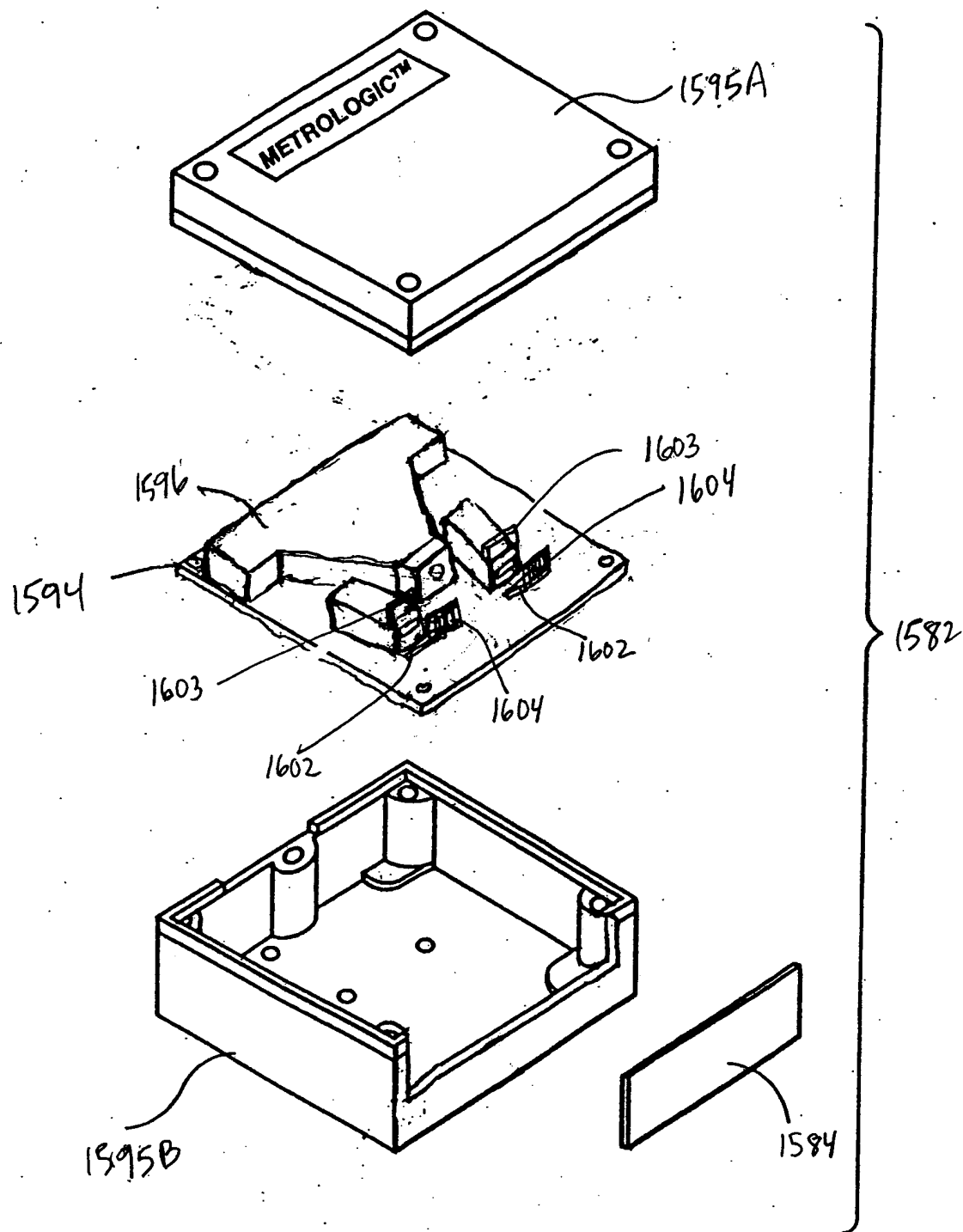


FIG. 43B

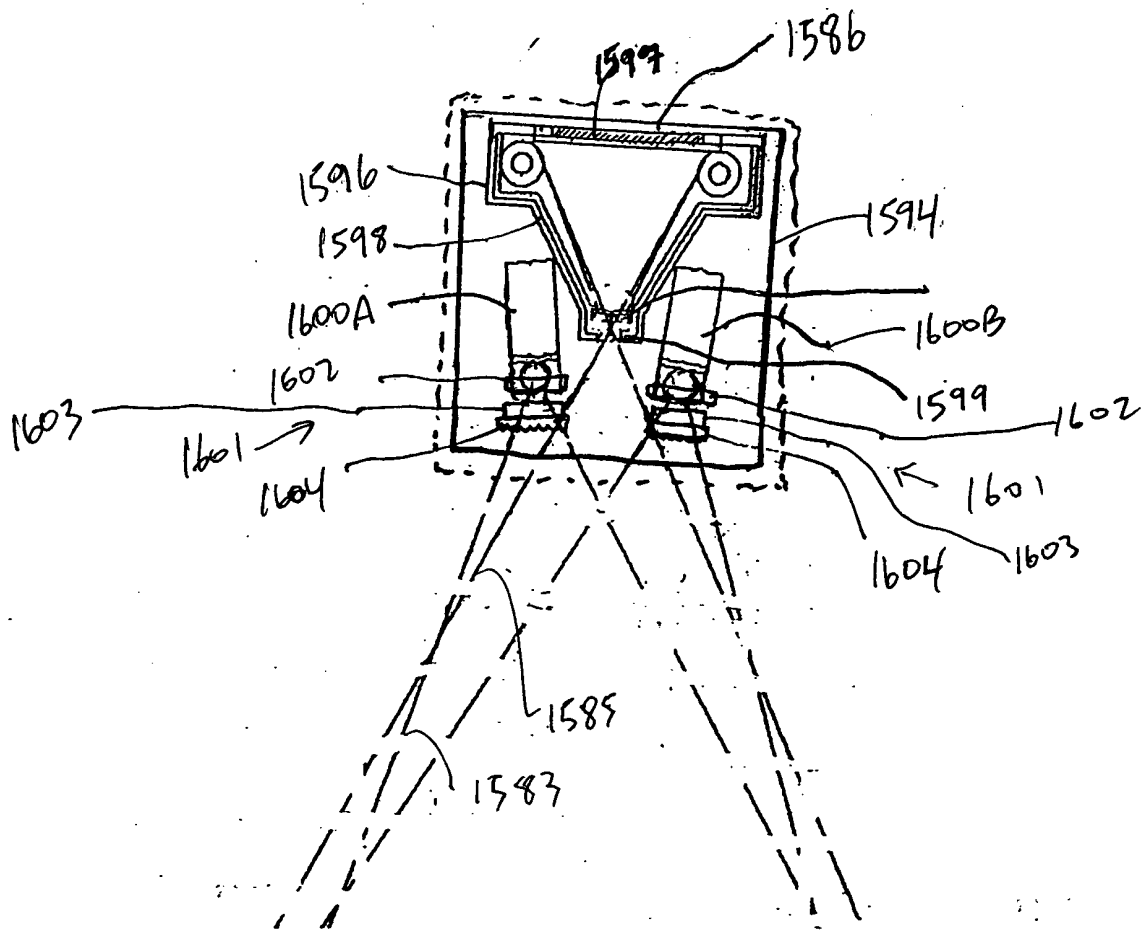


FIG. 43C

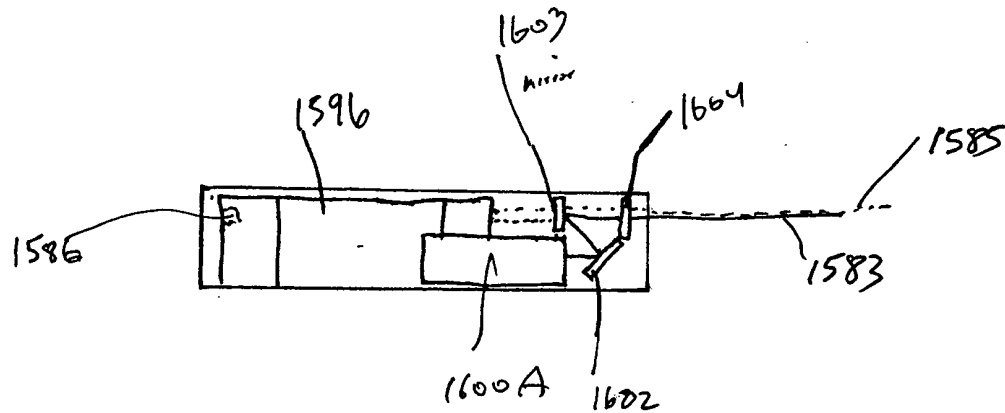


FIG. 43D

268/332

20000323007

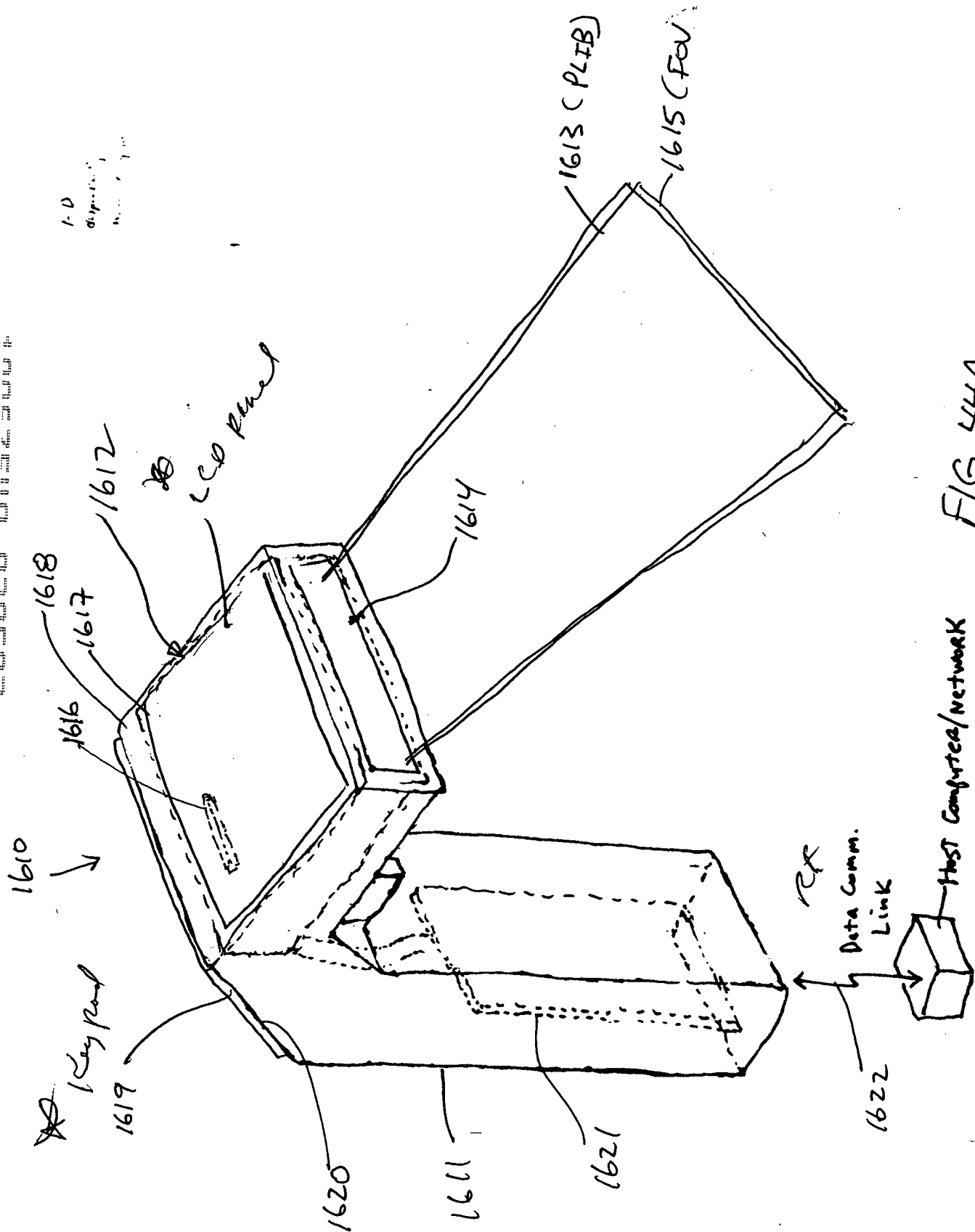


FIG. 44A

269/332

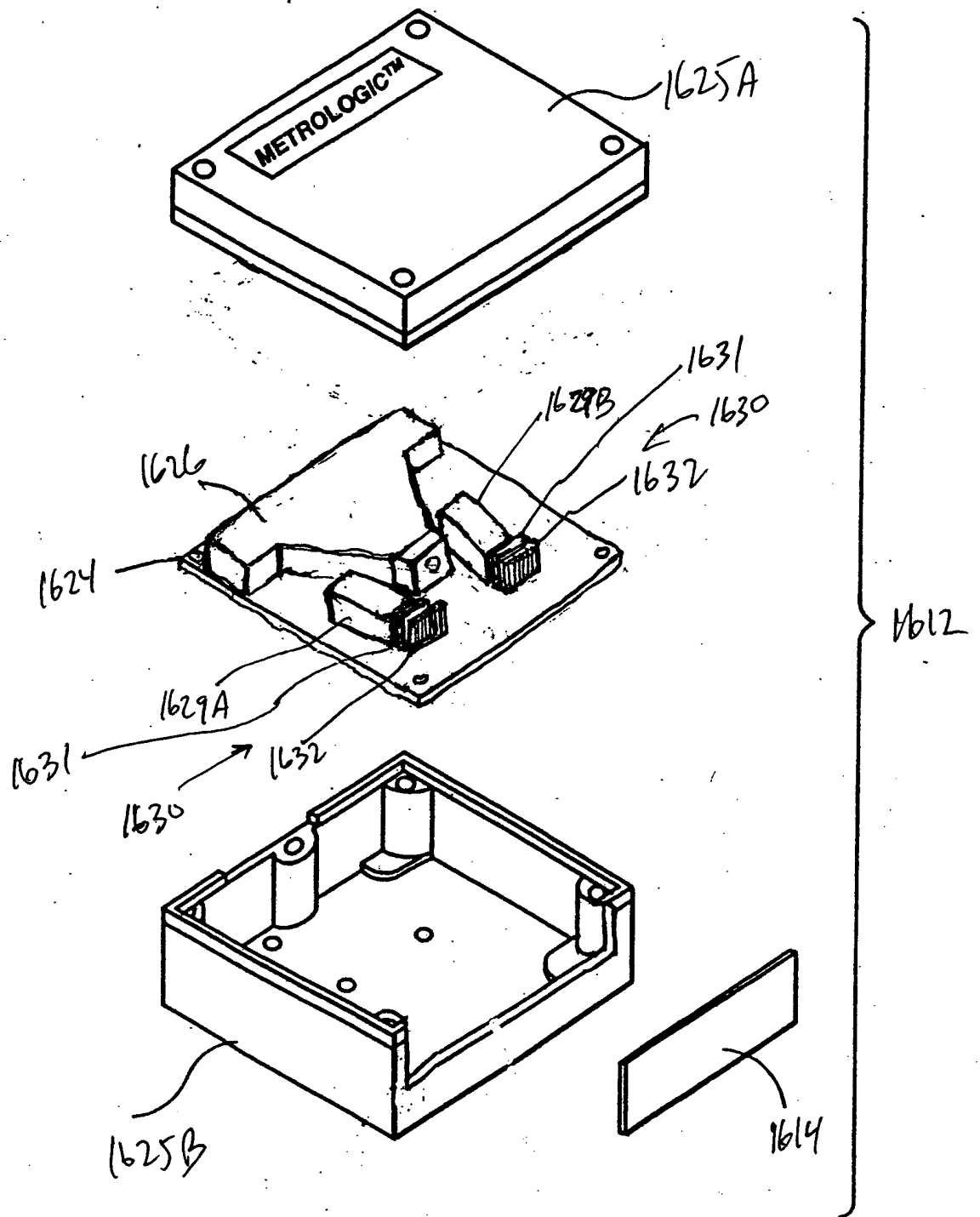
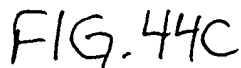


FIG. 44B

[illegible]

271/332

1-D
disposition
from 1-D

2000 01 25 00 00

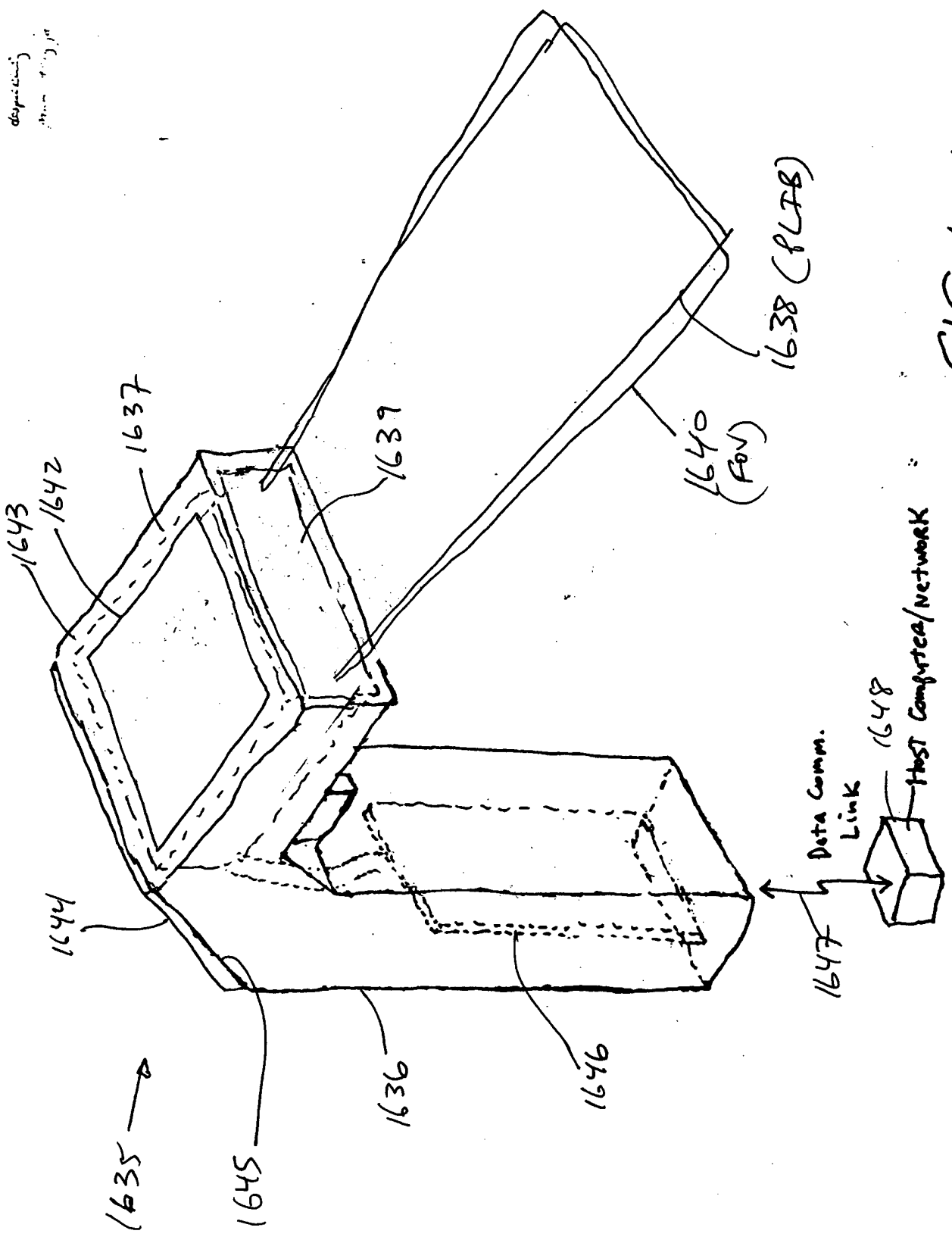


FIG. 45A

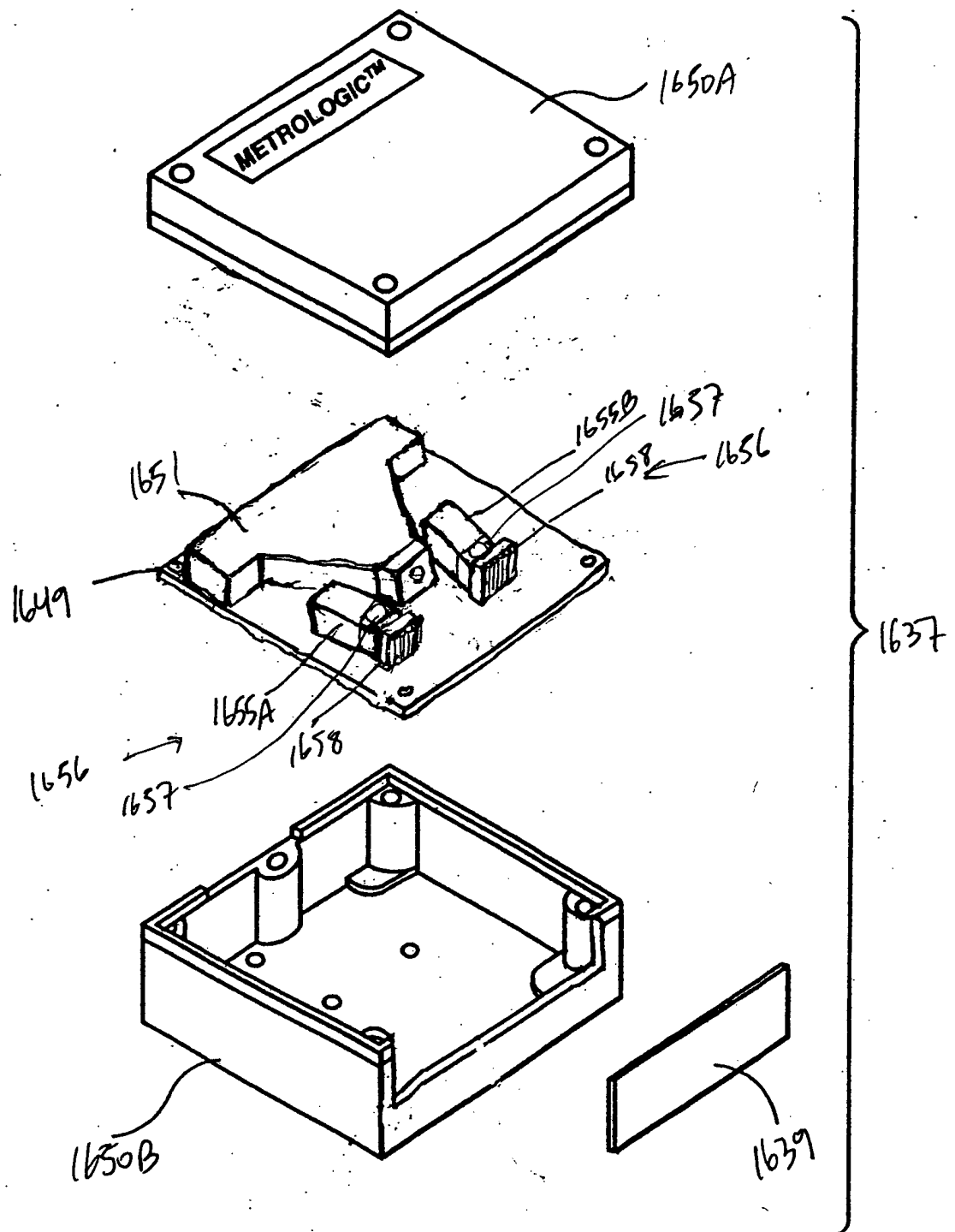
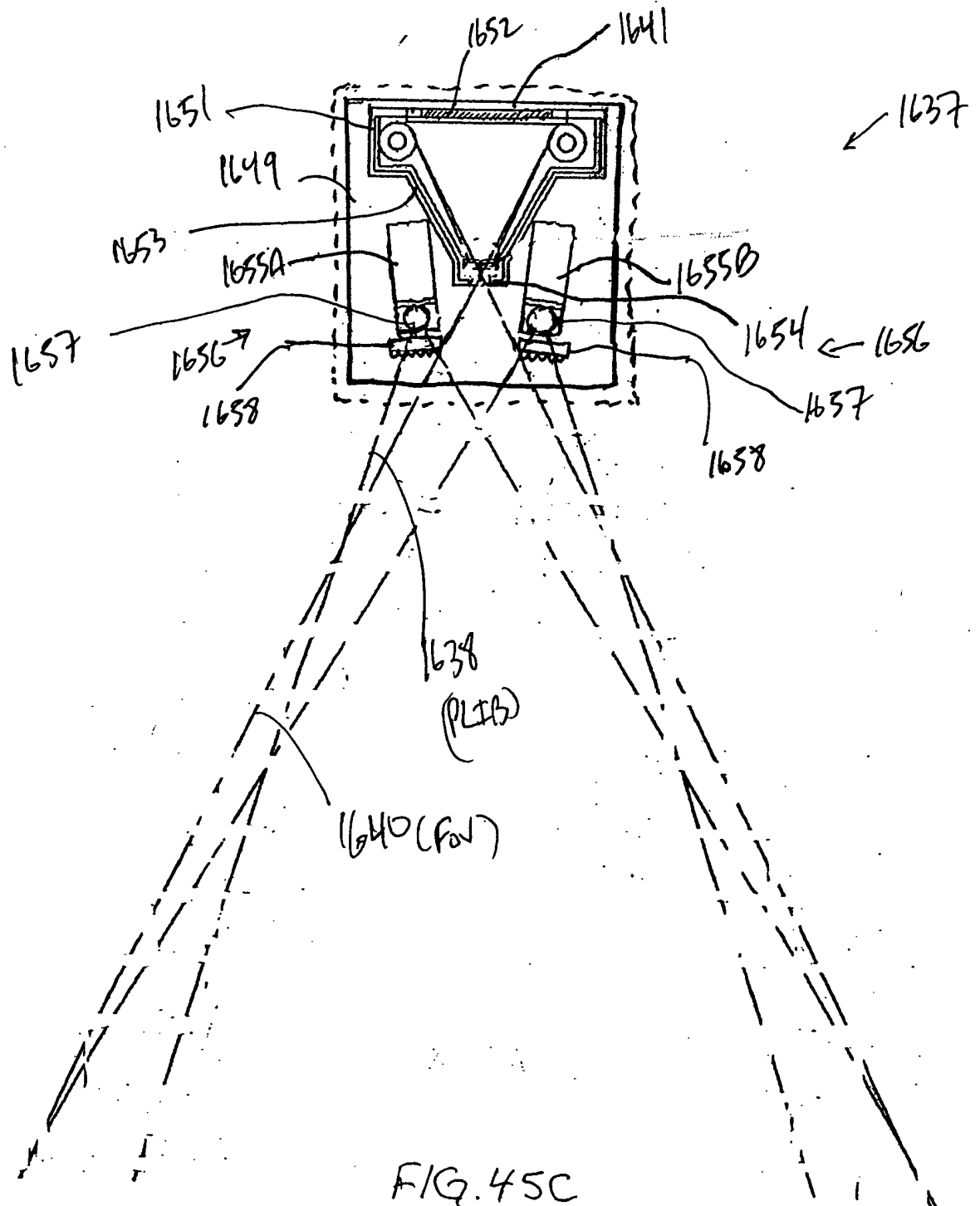


FIG. 45B

273/332



274/332

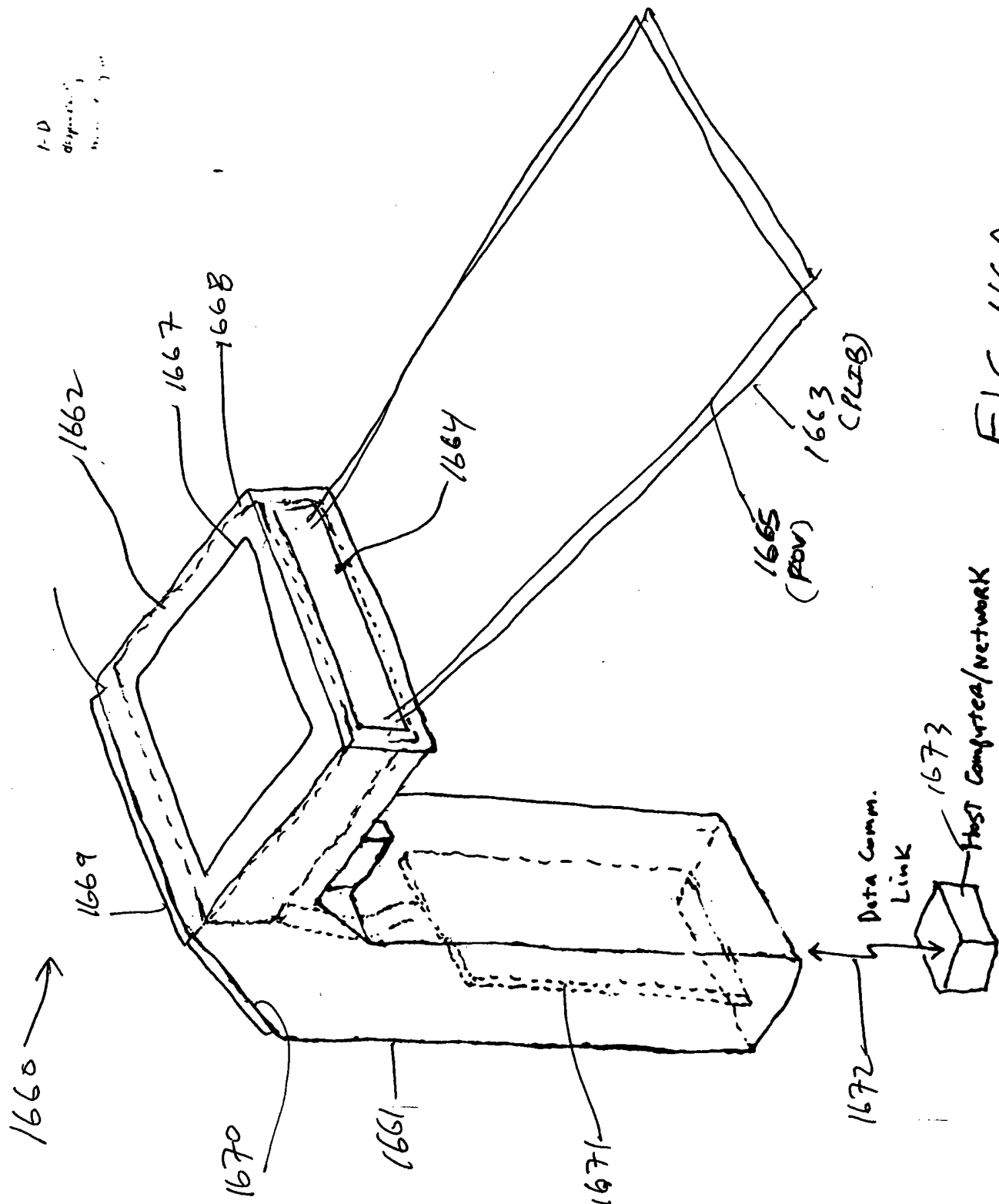


FIG. 46A

275/332

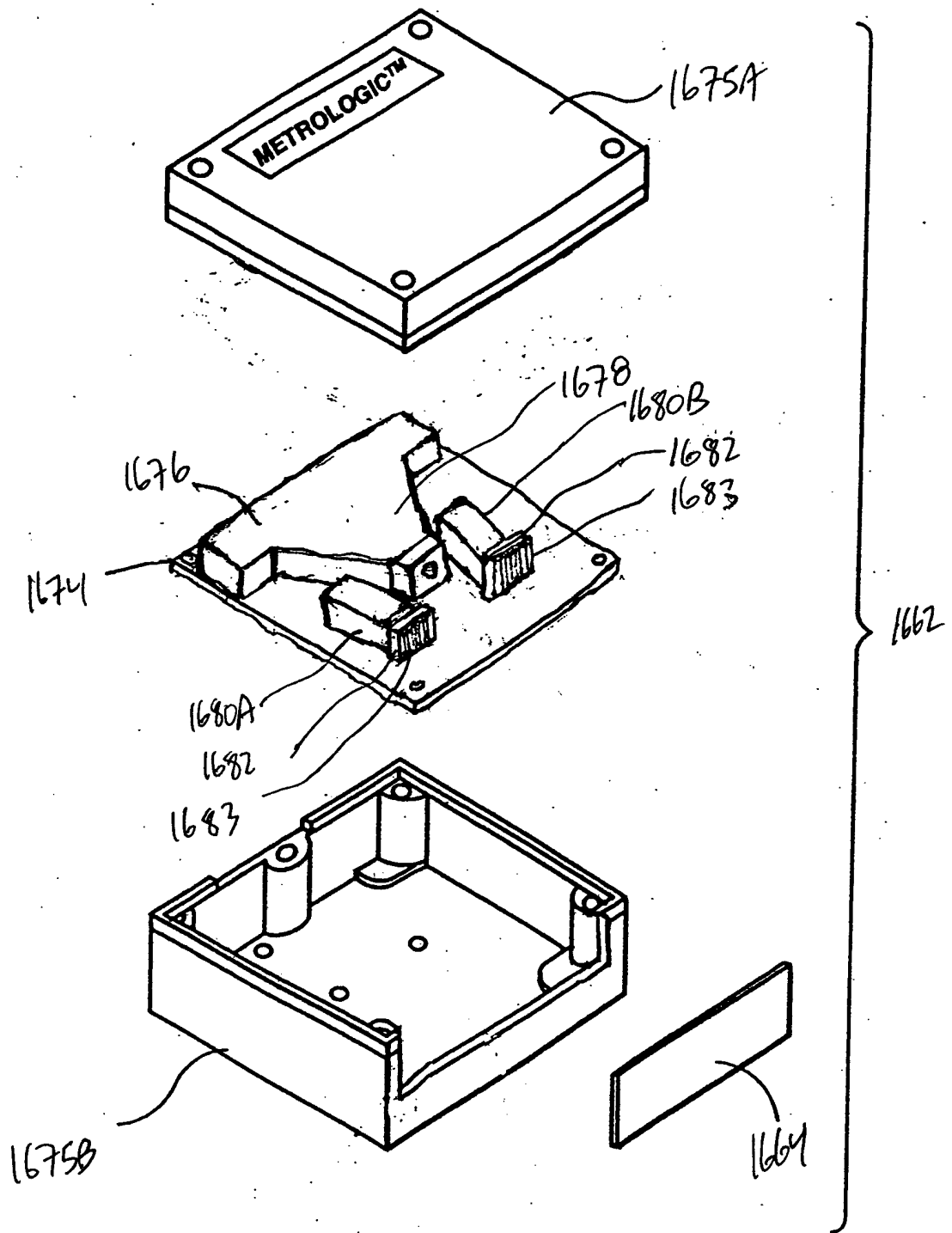


FIG. 46B

276/332

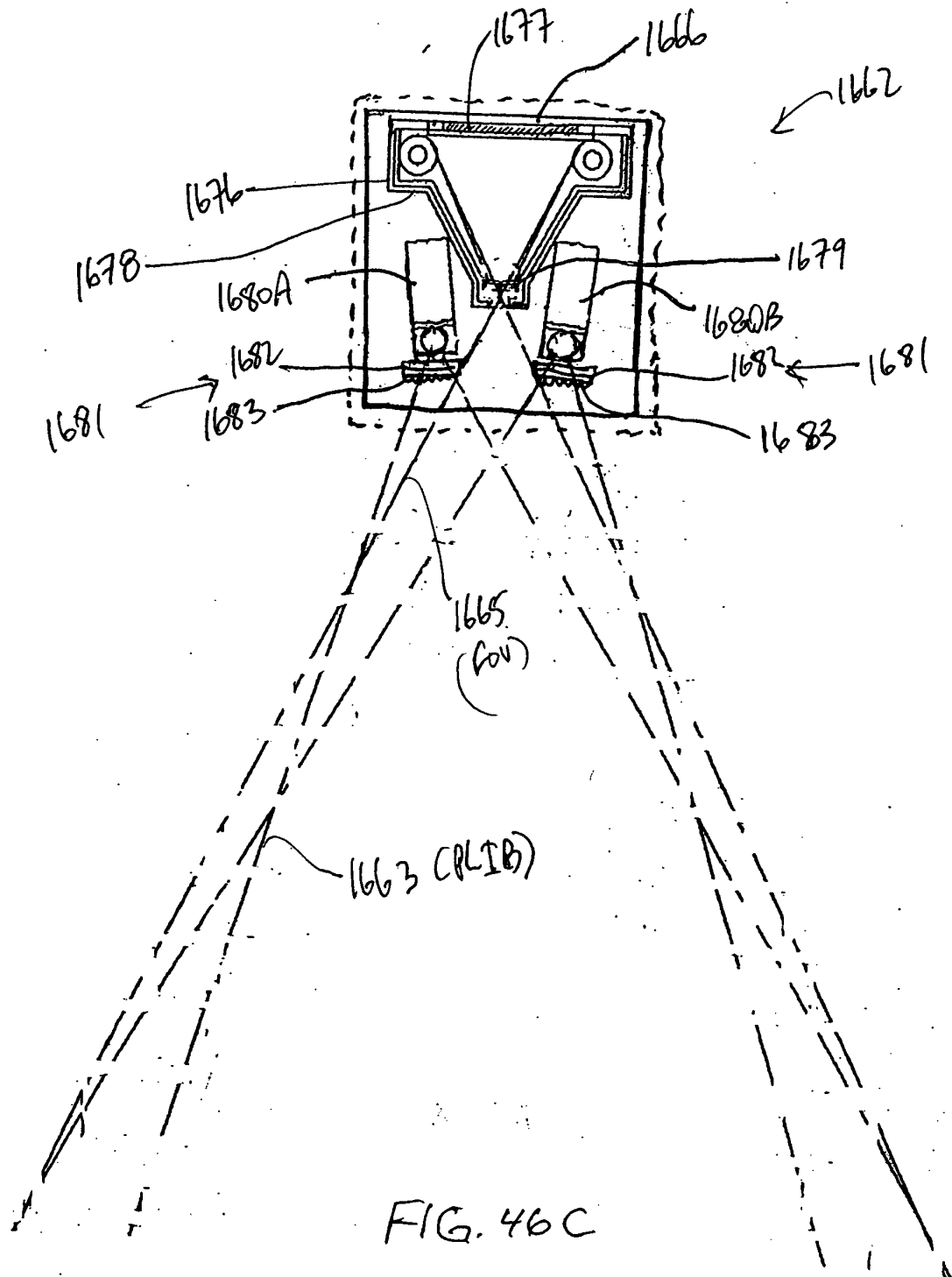
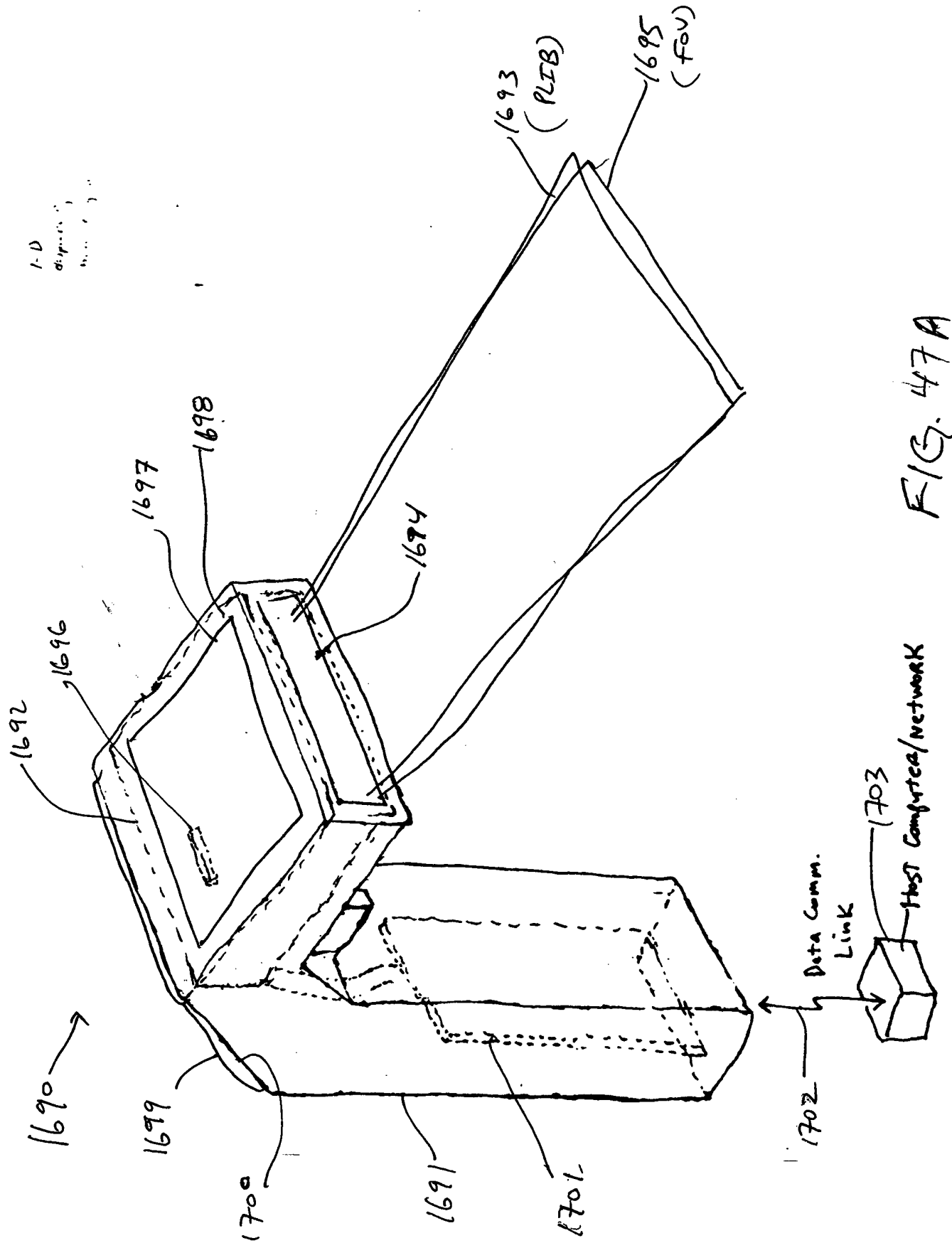


FIG. 46C

277/332



278/332

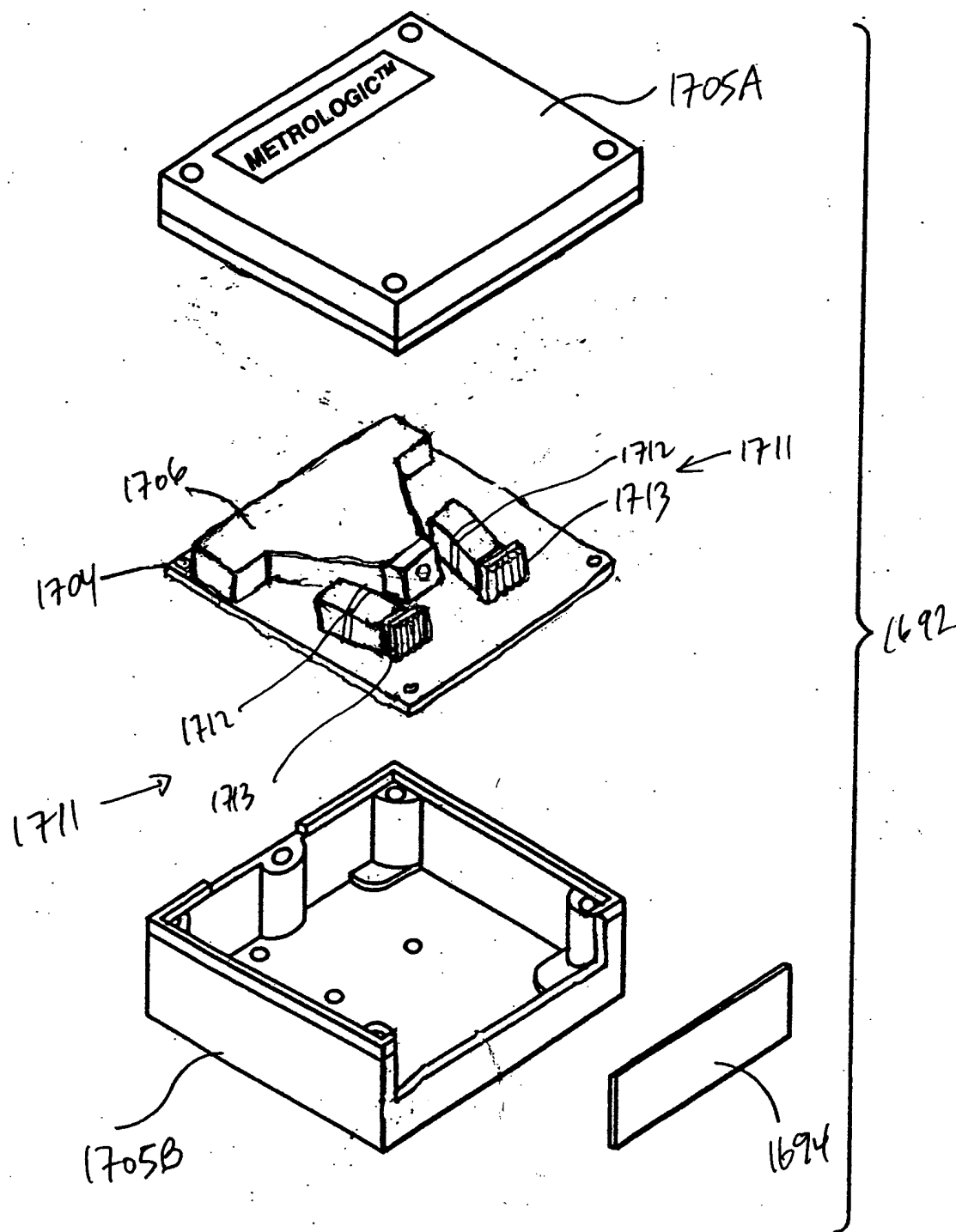
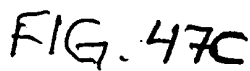
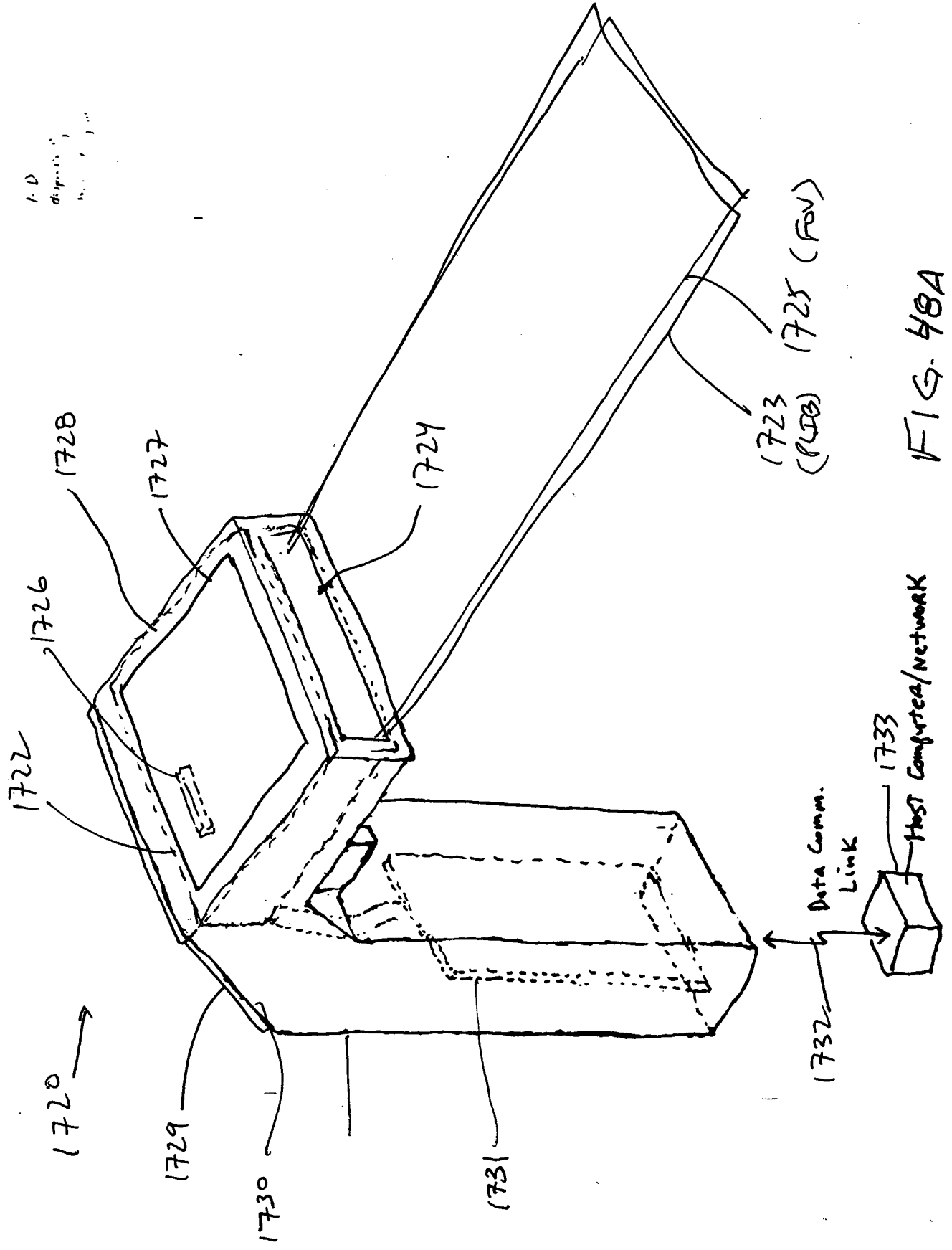


FIG. 47B

[illegible]

280/332



281/332

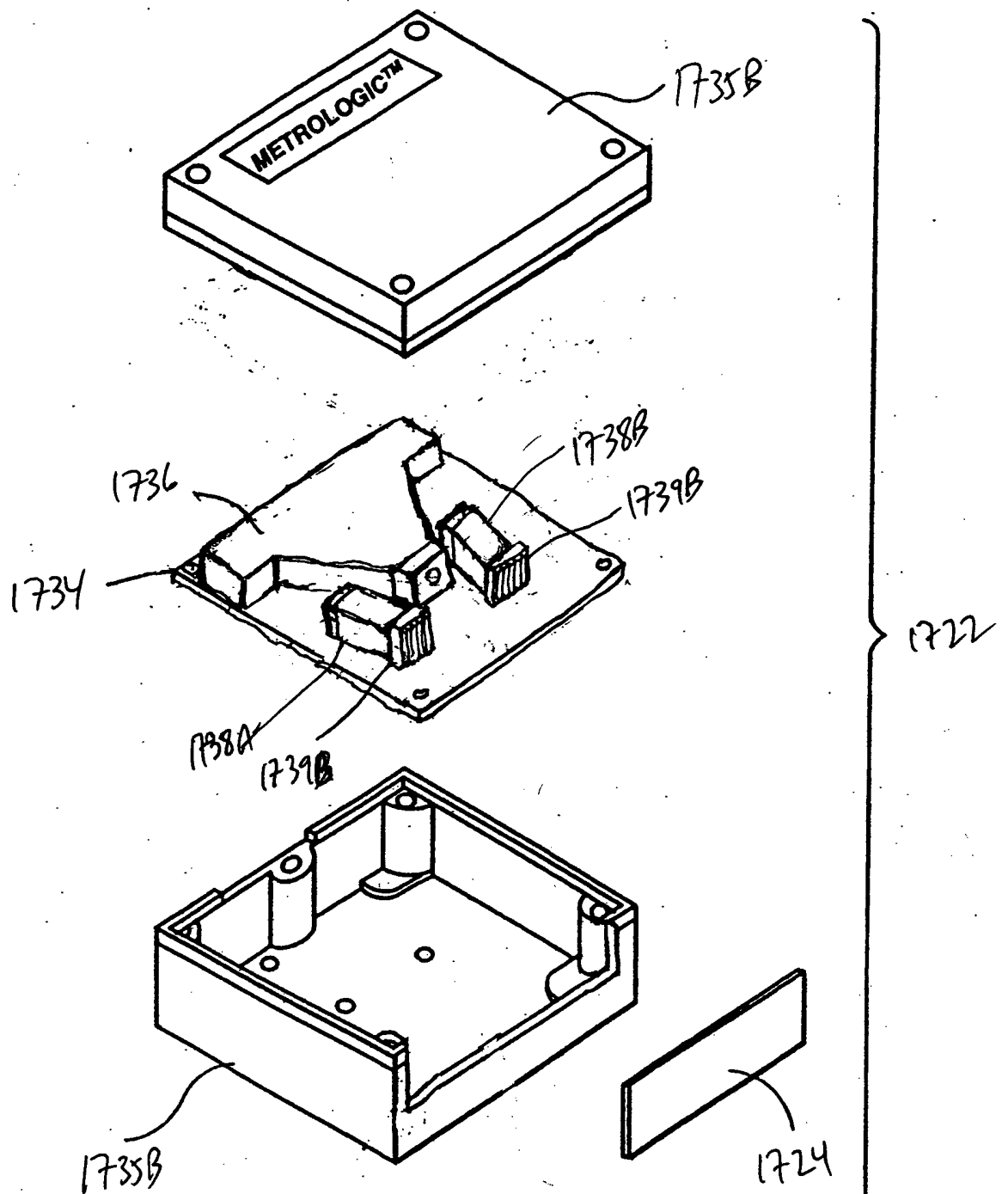


FIG. 48B

282/332

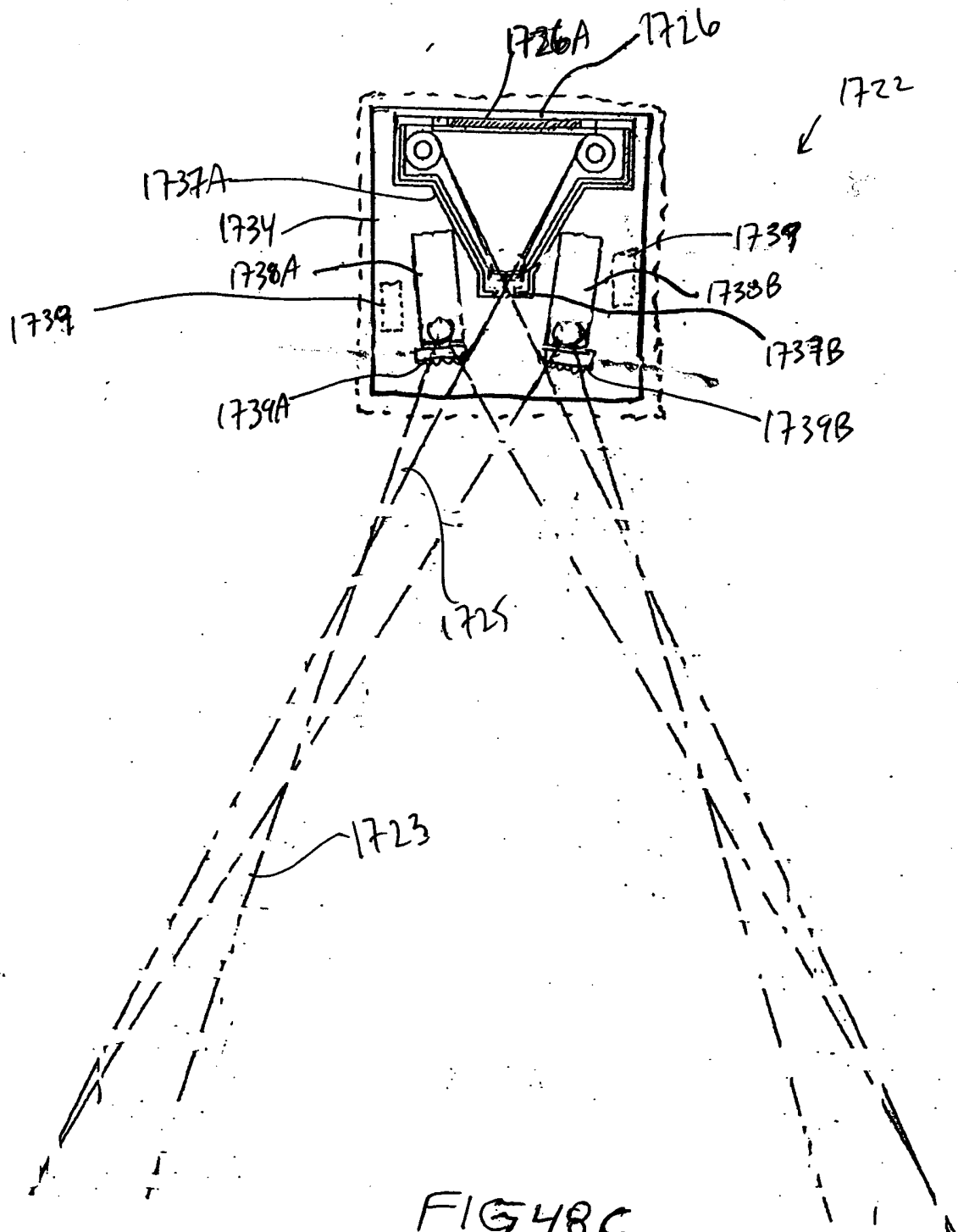
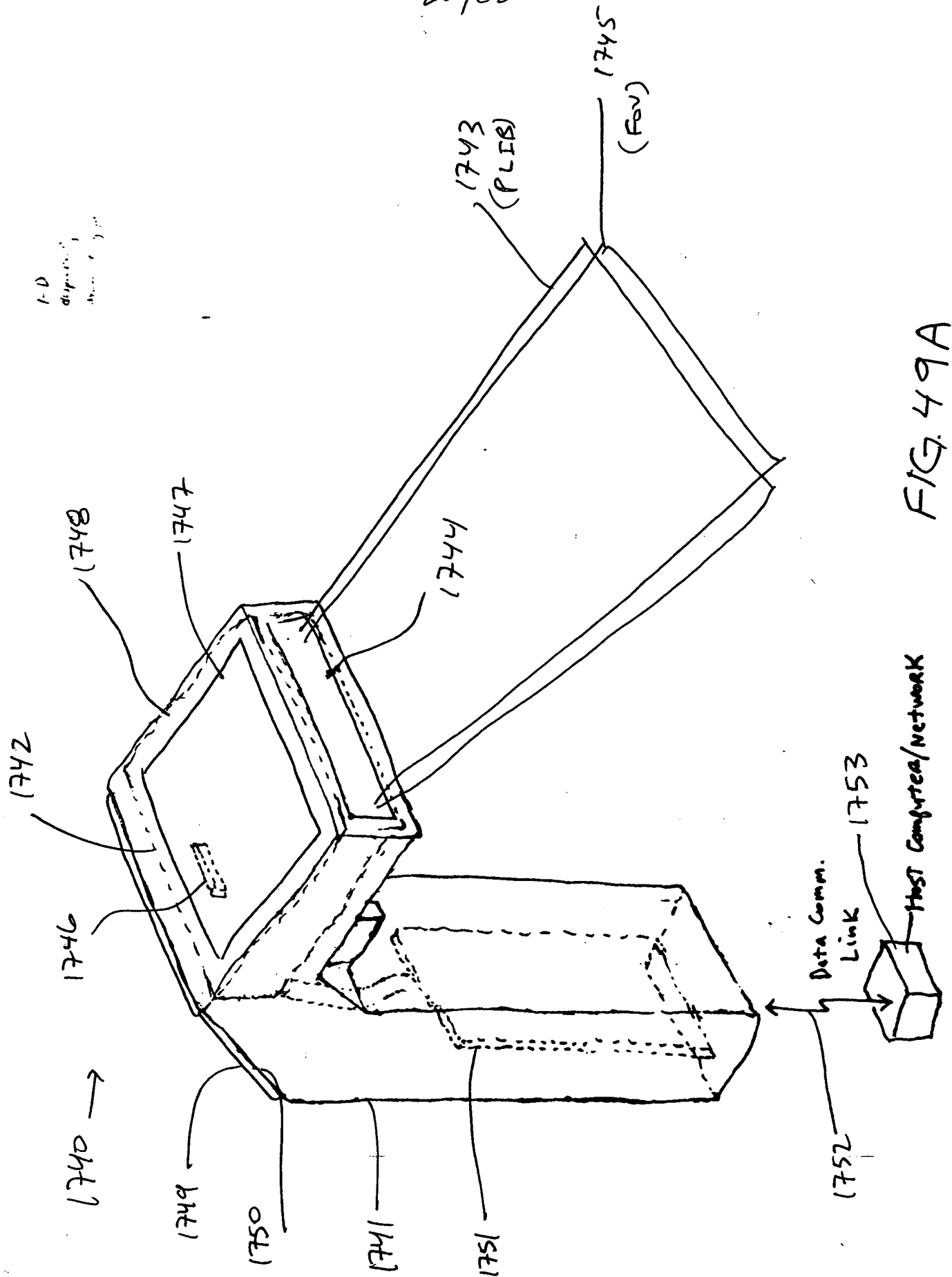


FIG. 48C

283/332



284/332

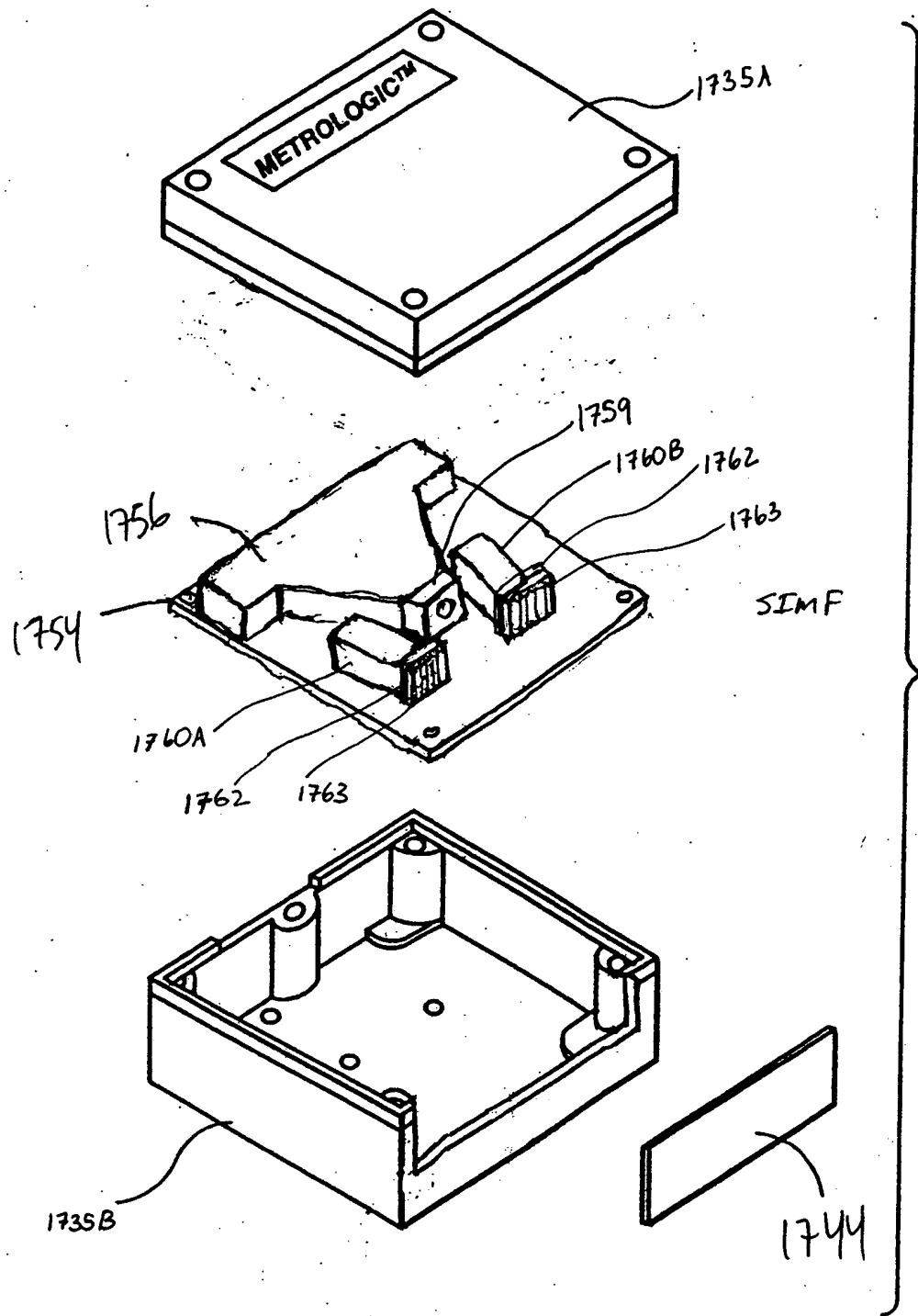


FIG. 49B

285/332

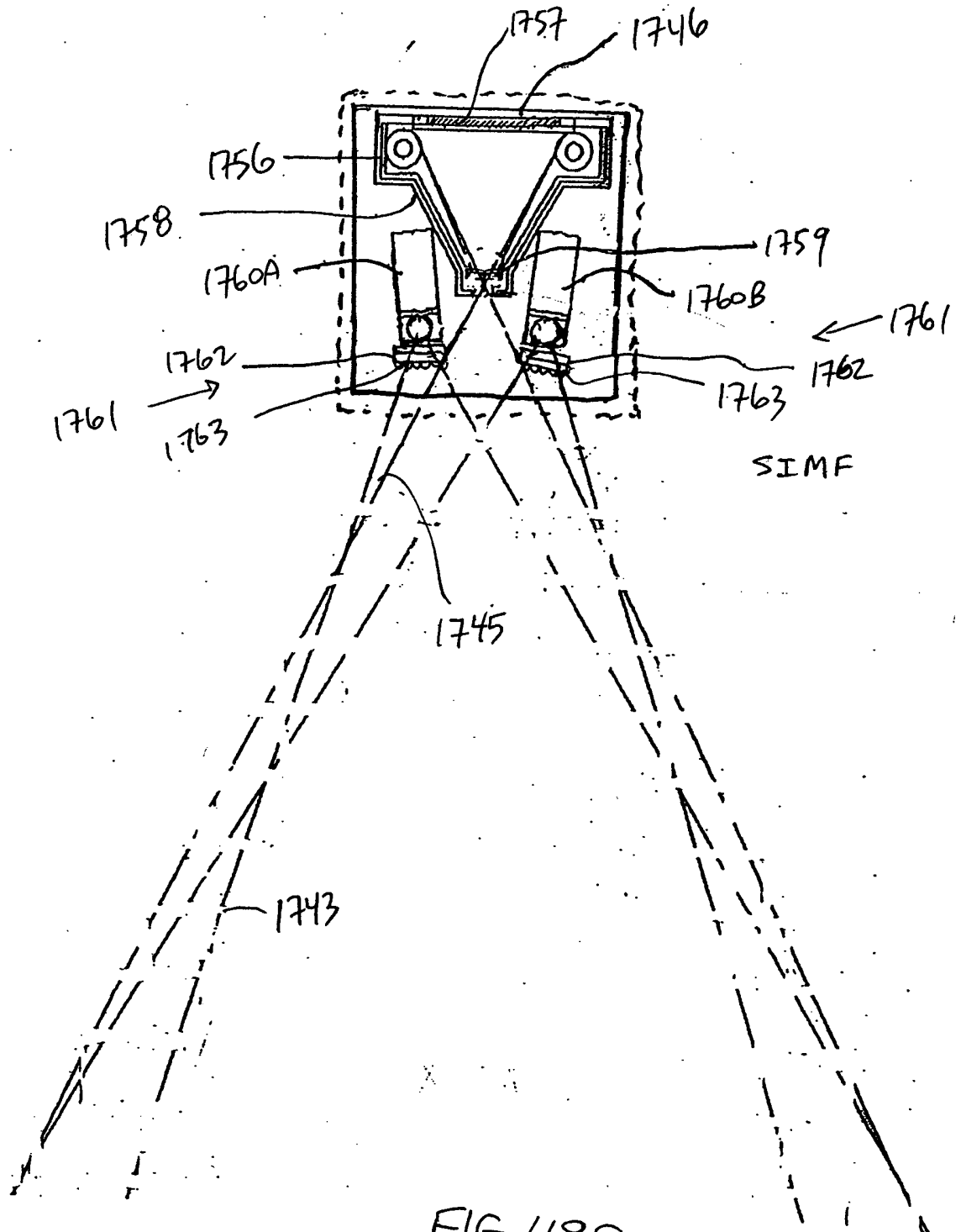


FIG. 49C

286/332

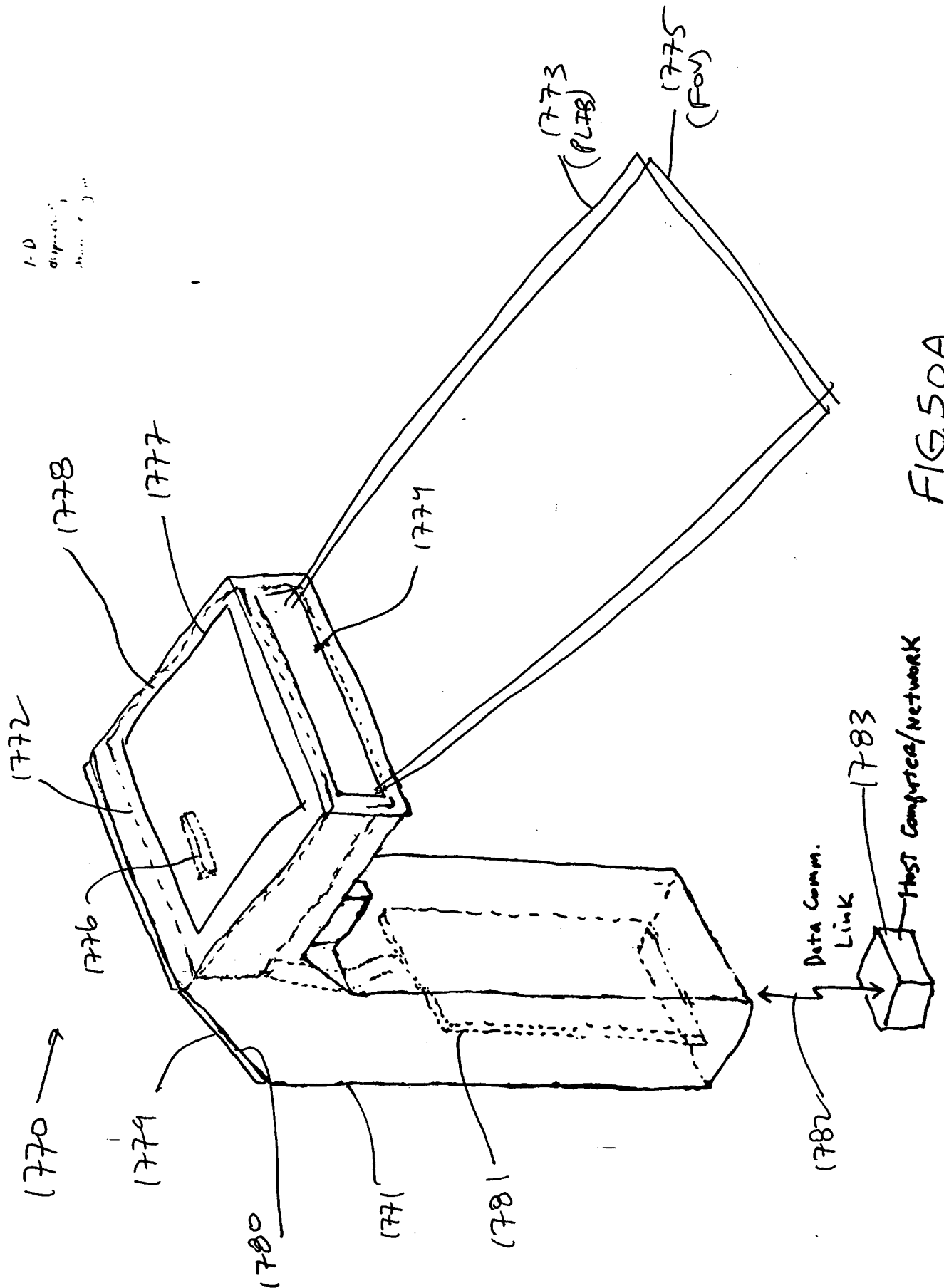


FIG. 50A

287/332

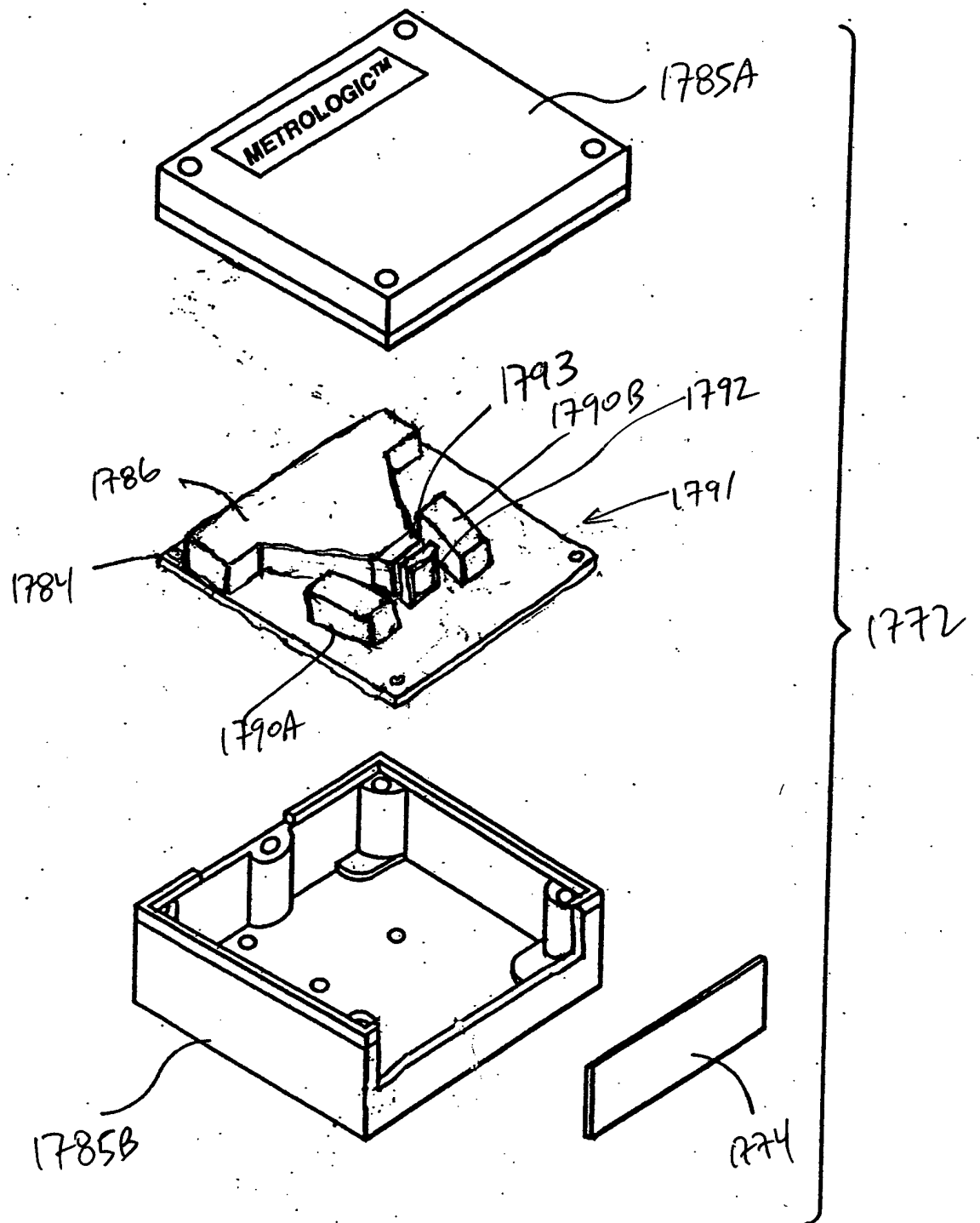


FIG. 50B

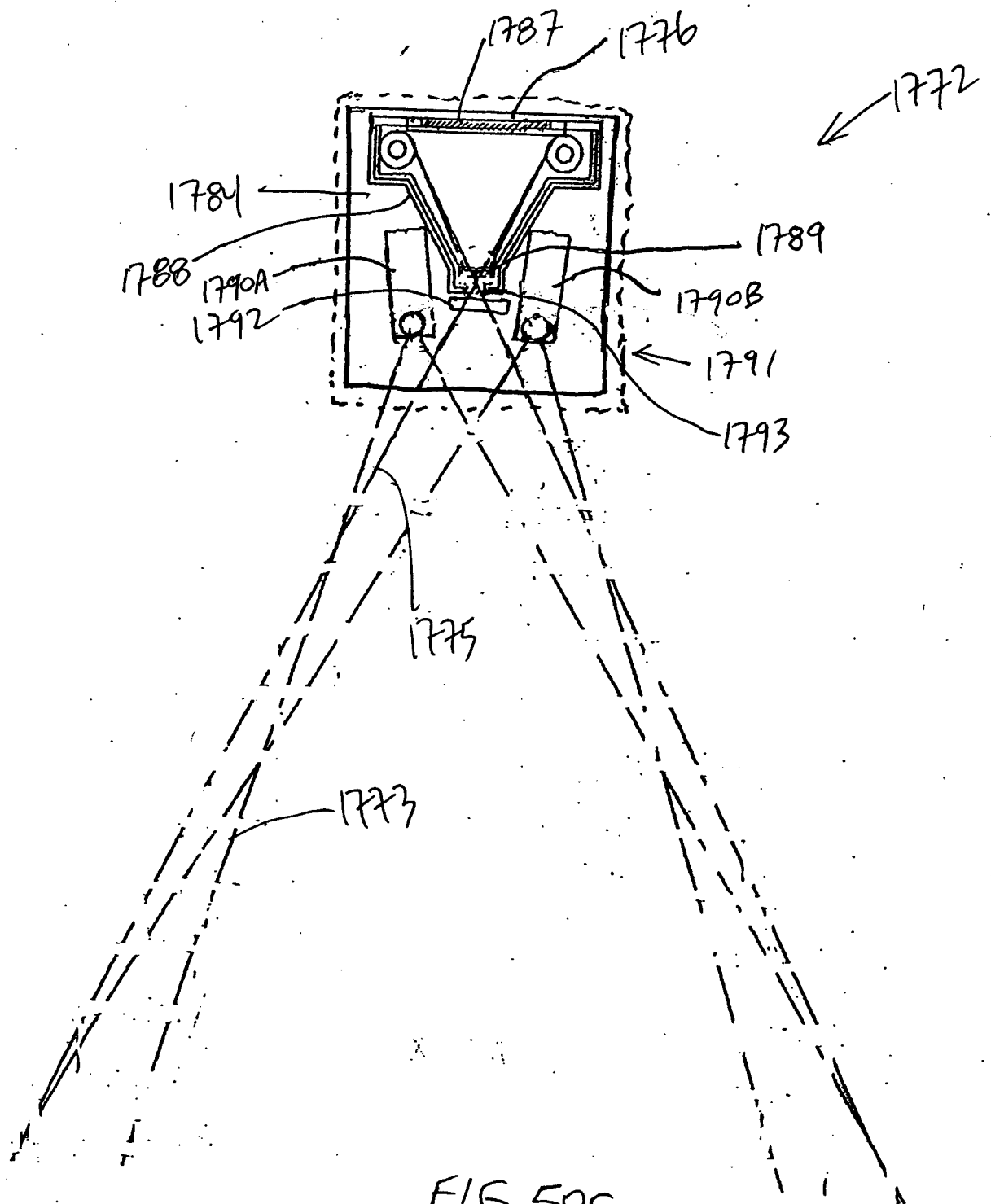
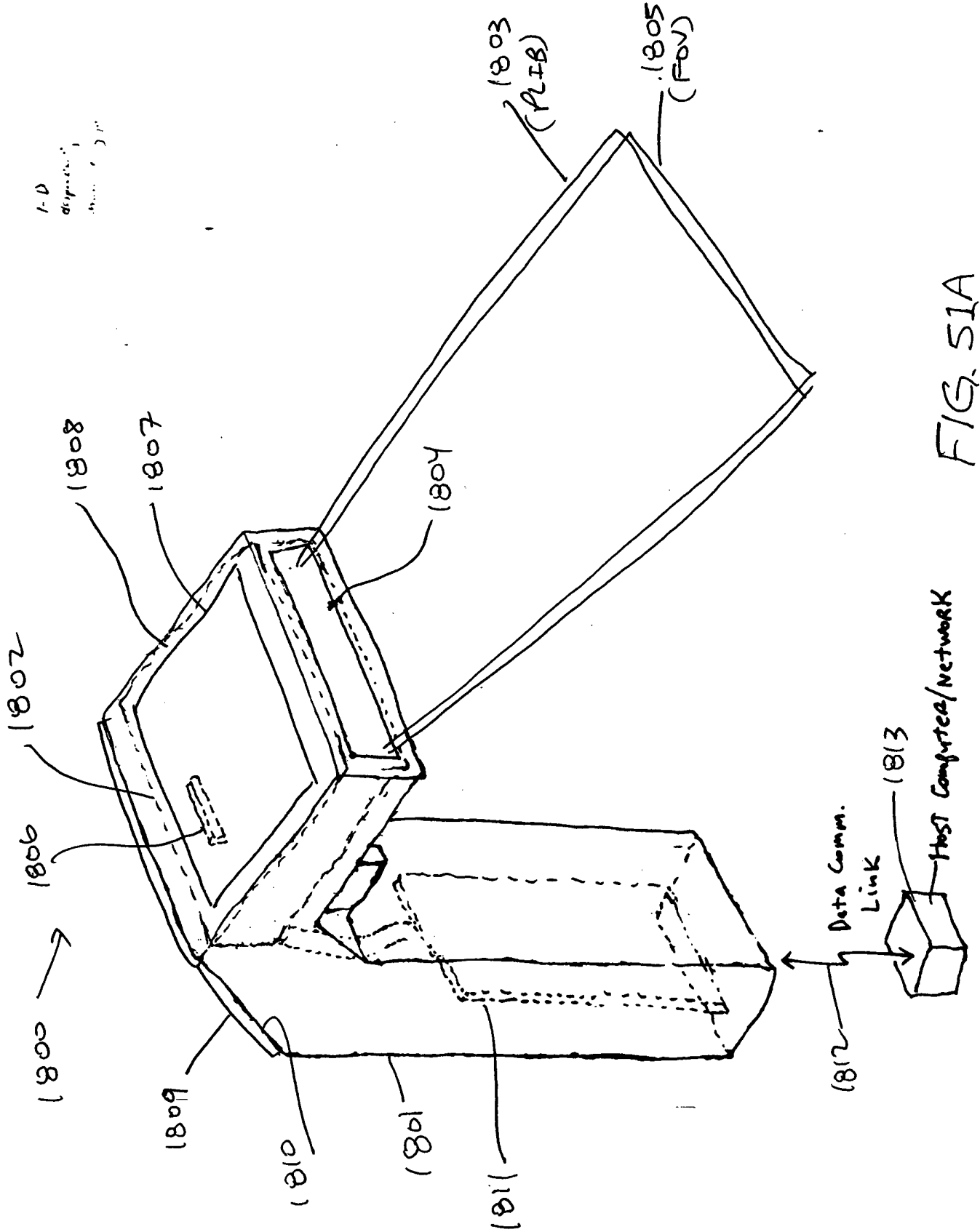


FIG. 50C

289/332



290/332

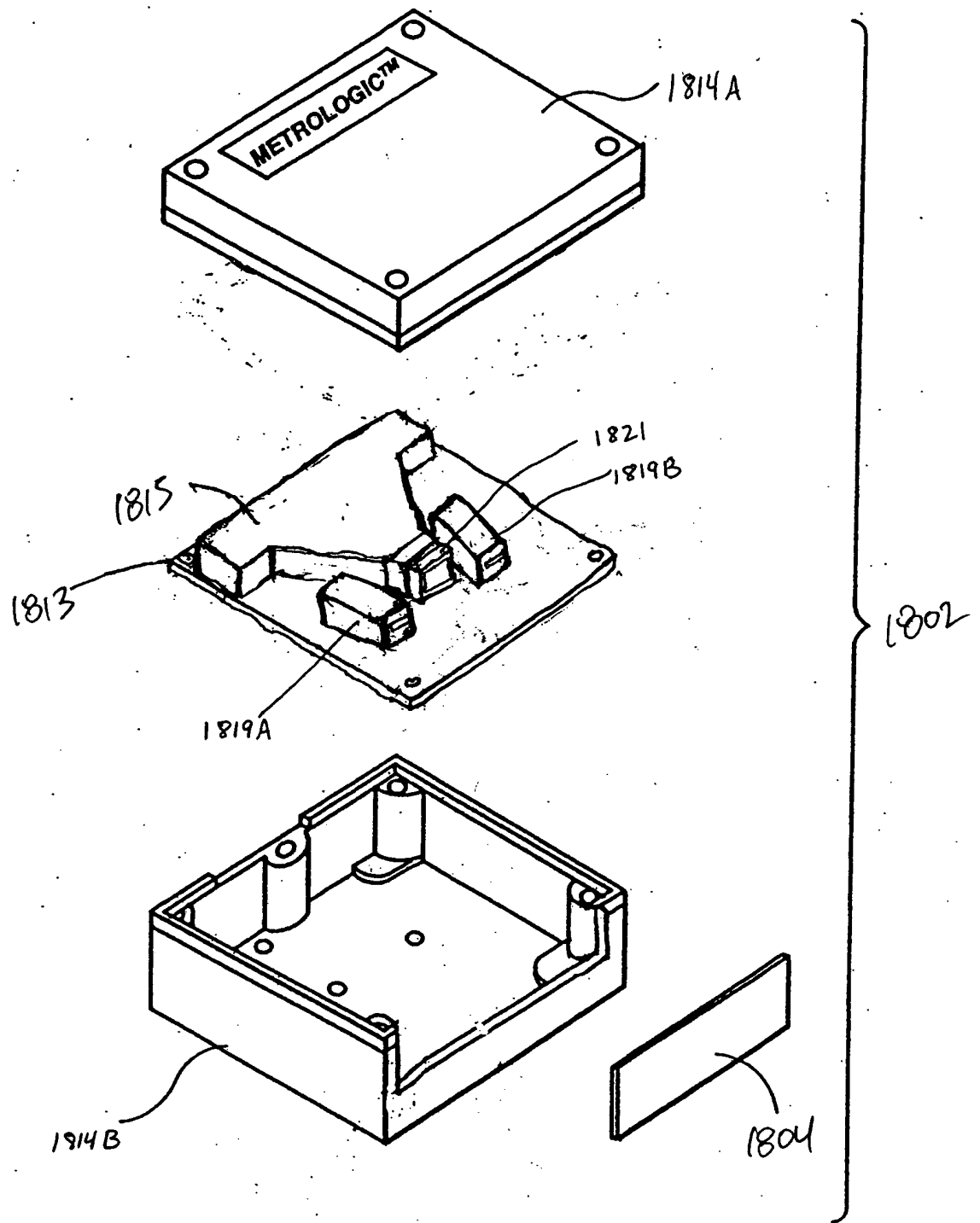


FIG. 51B

291/332

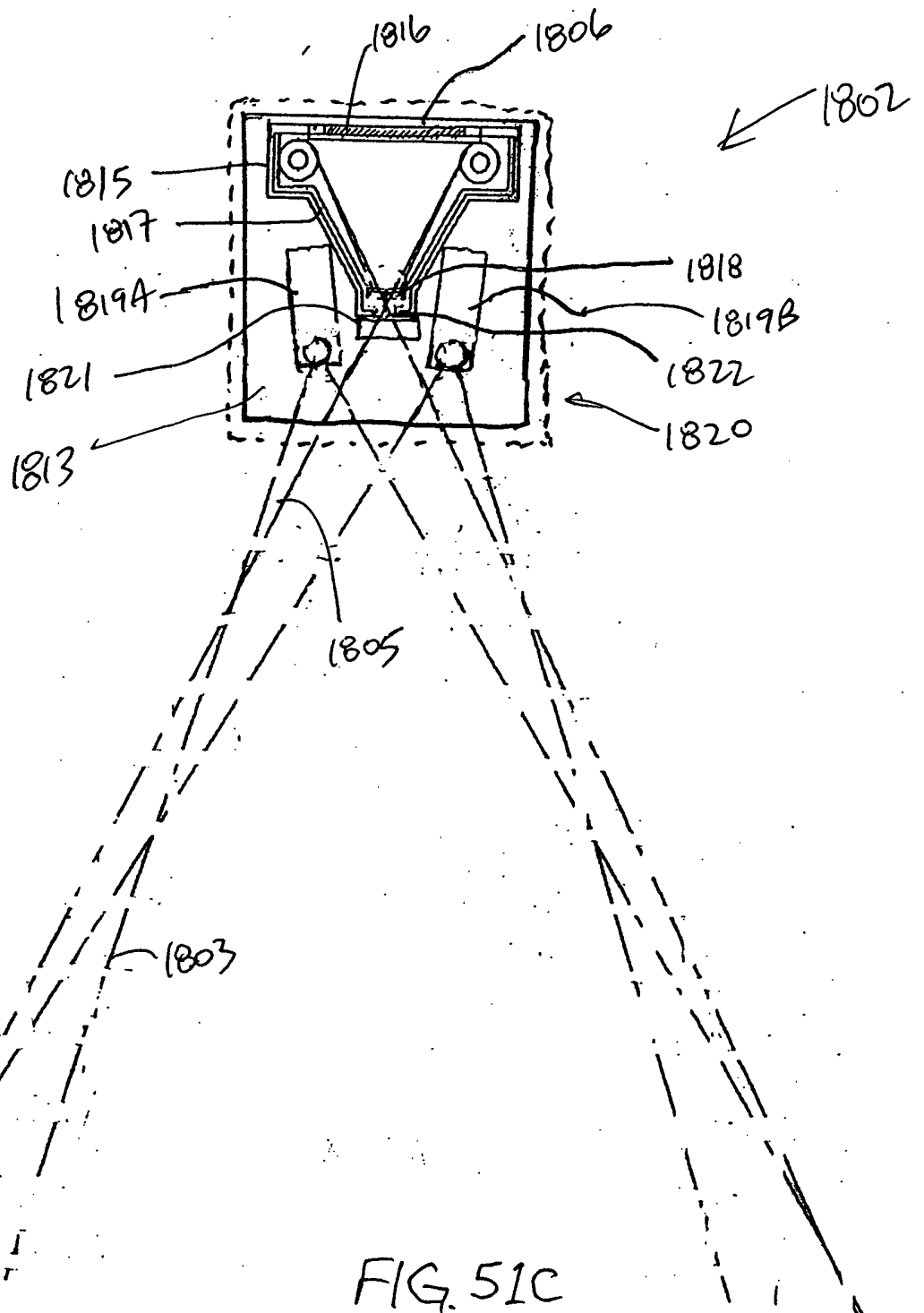


FIG. 51C

292/332

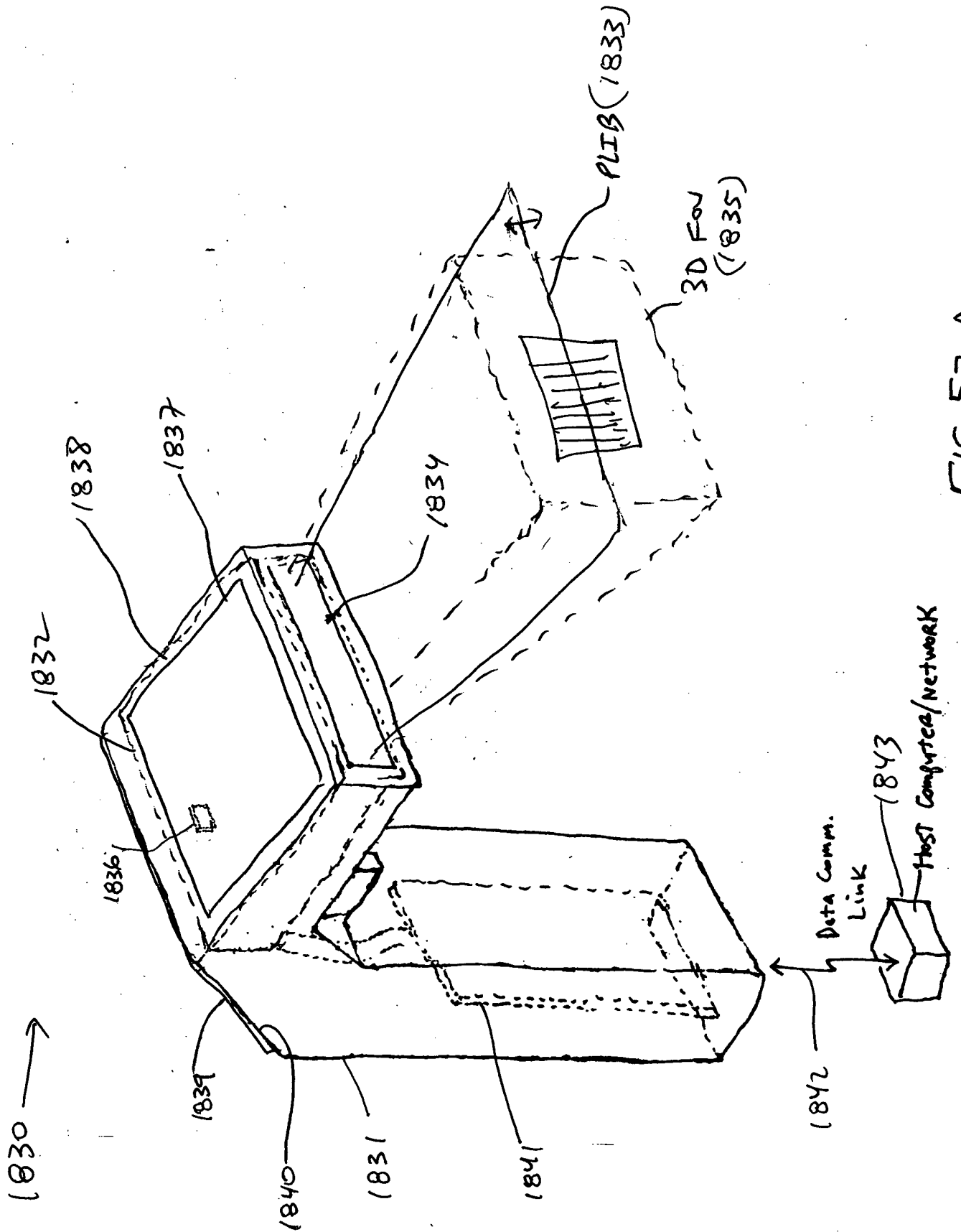


FIG. 52A

293/332

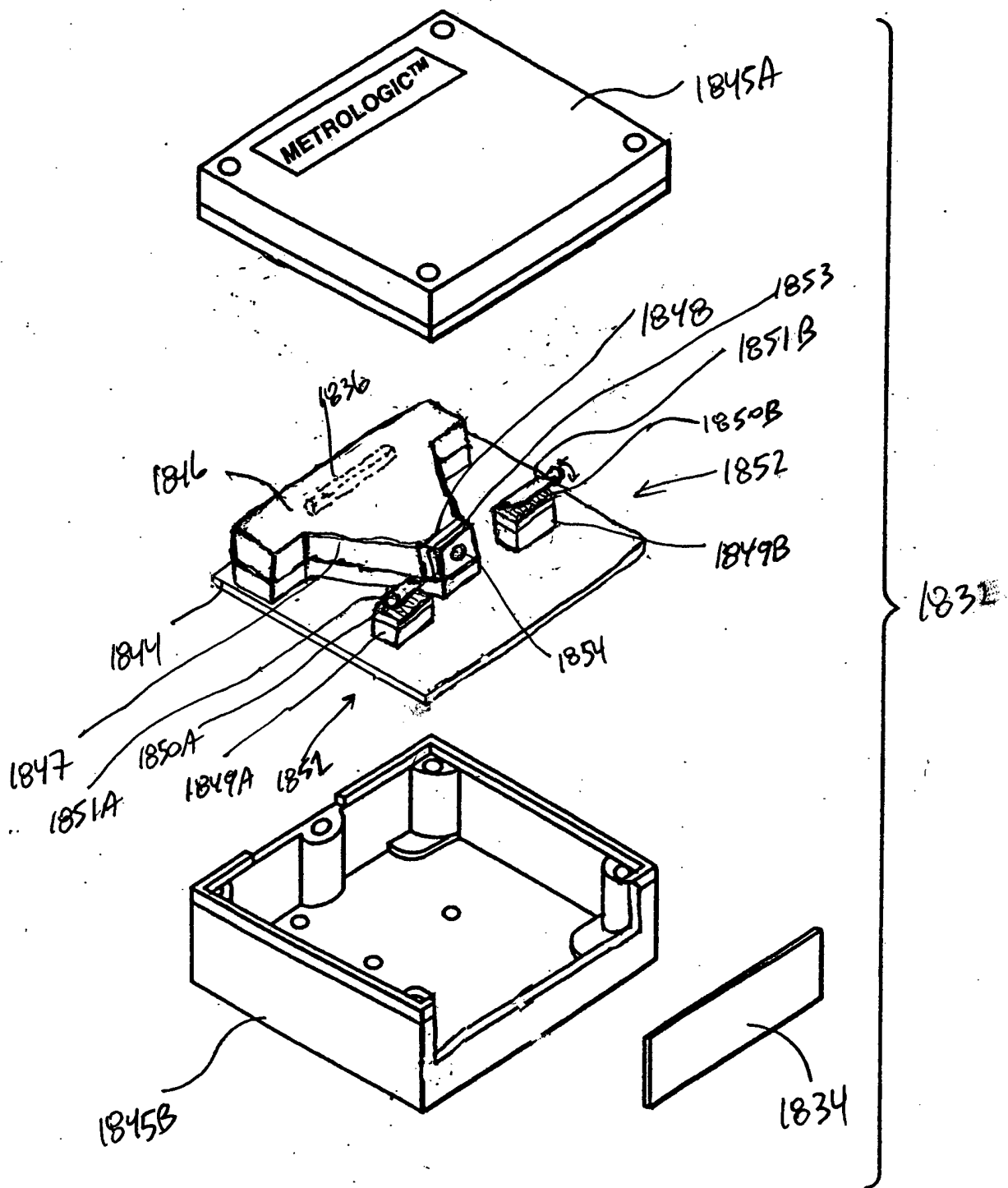


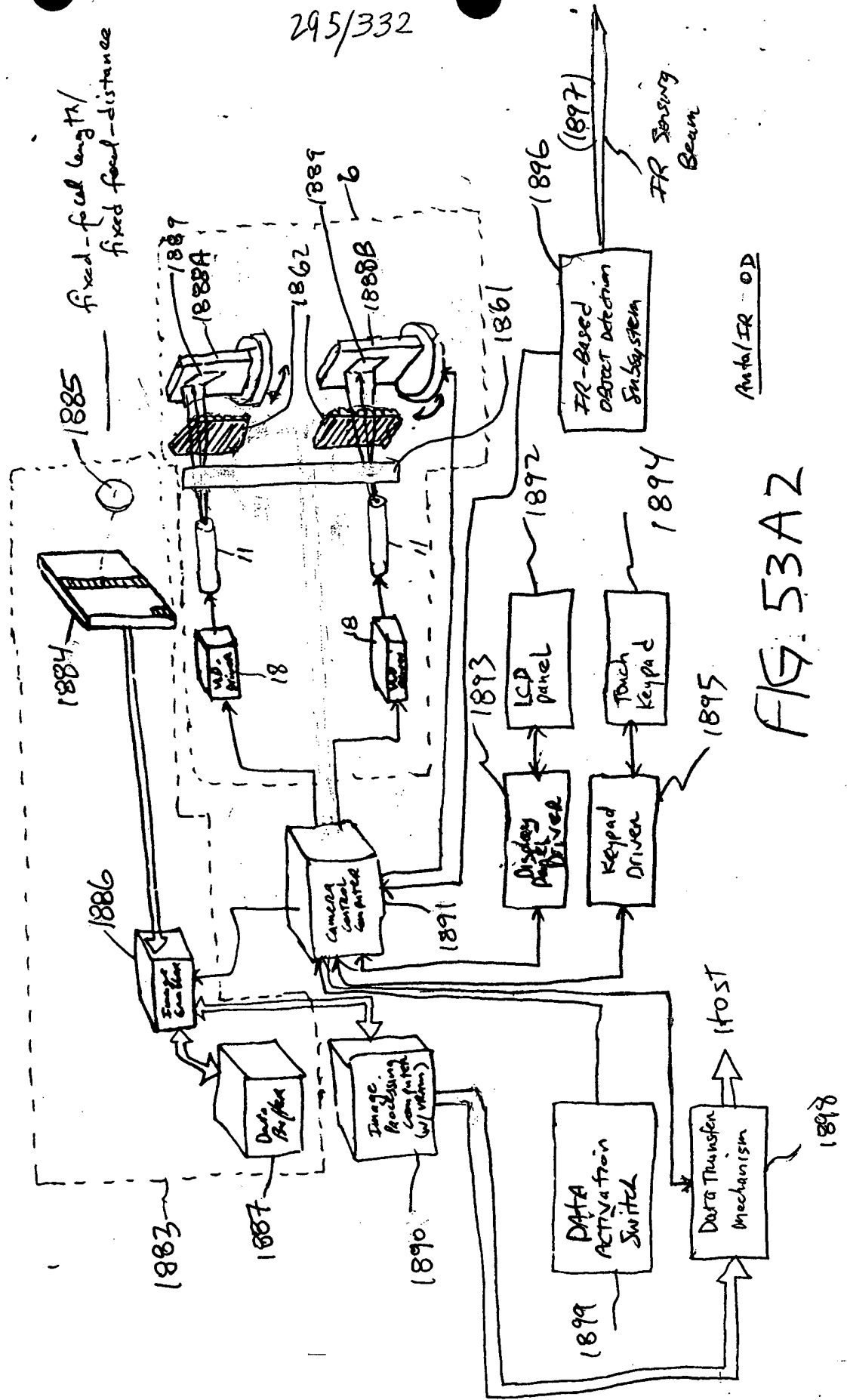
FIG. 52B

Fig. 1I3A-3B

2025 RELEASE UNDER E.O. 14176

295/332

1880

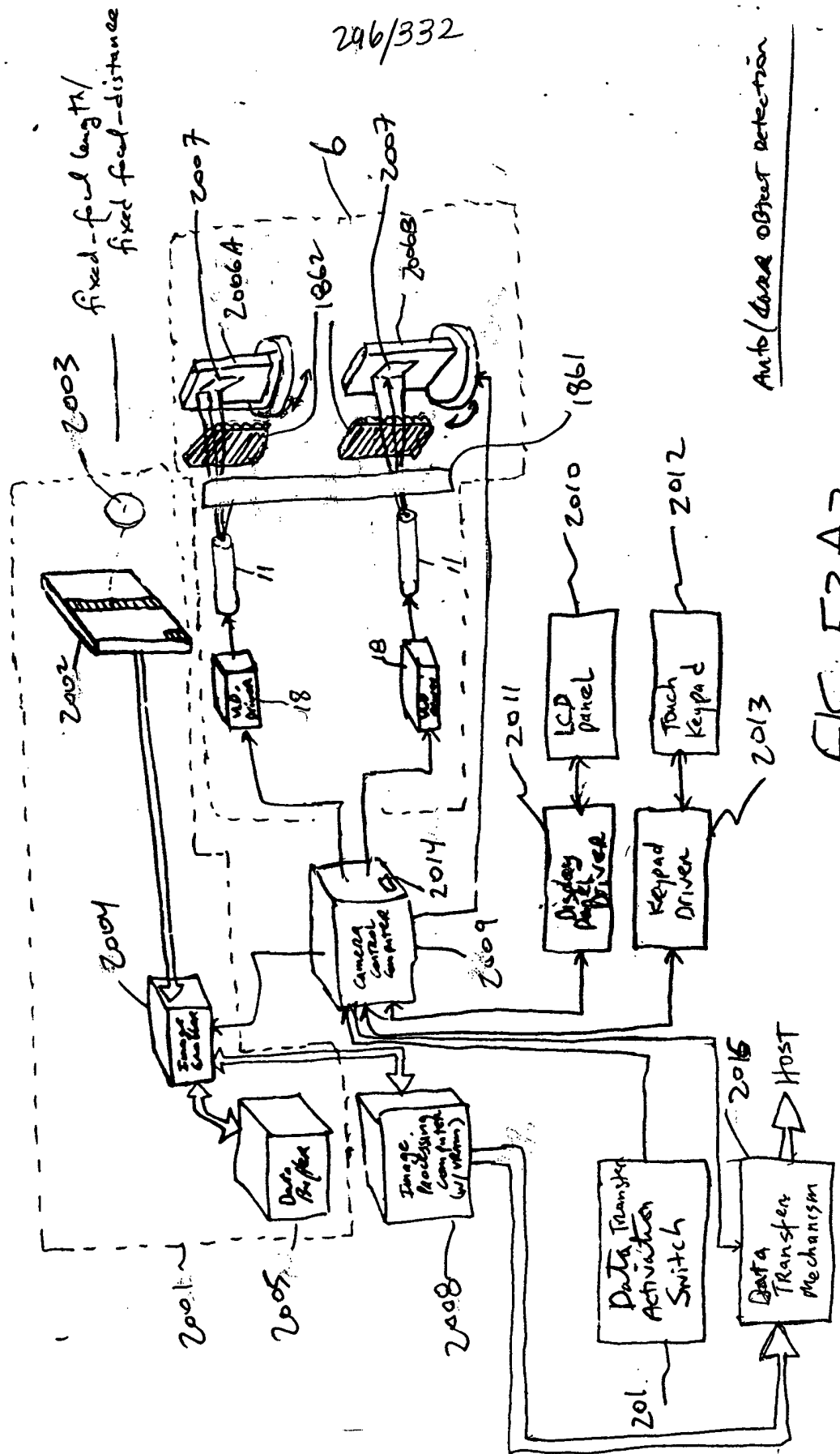


Auto/IR-OD

FIG. 53A2

2000

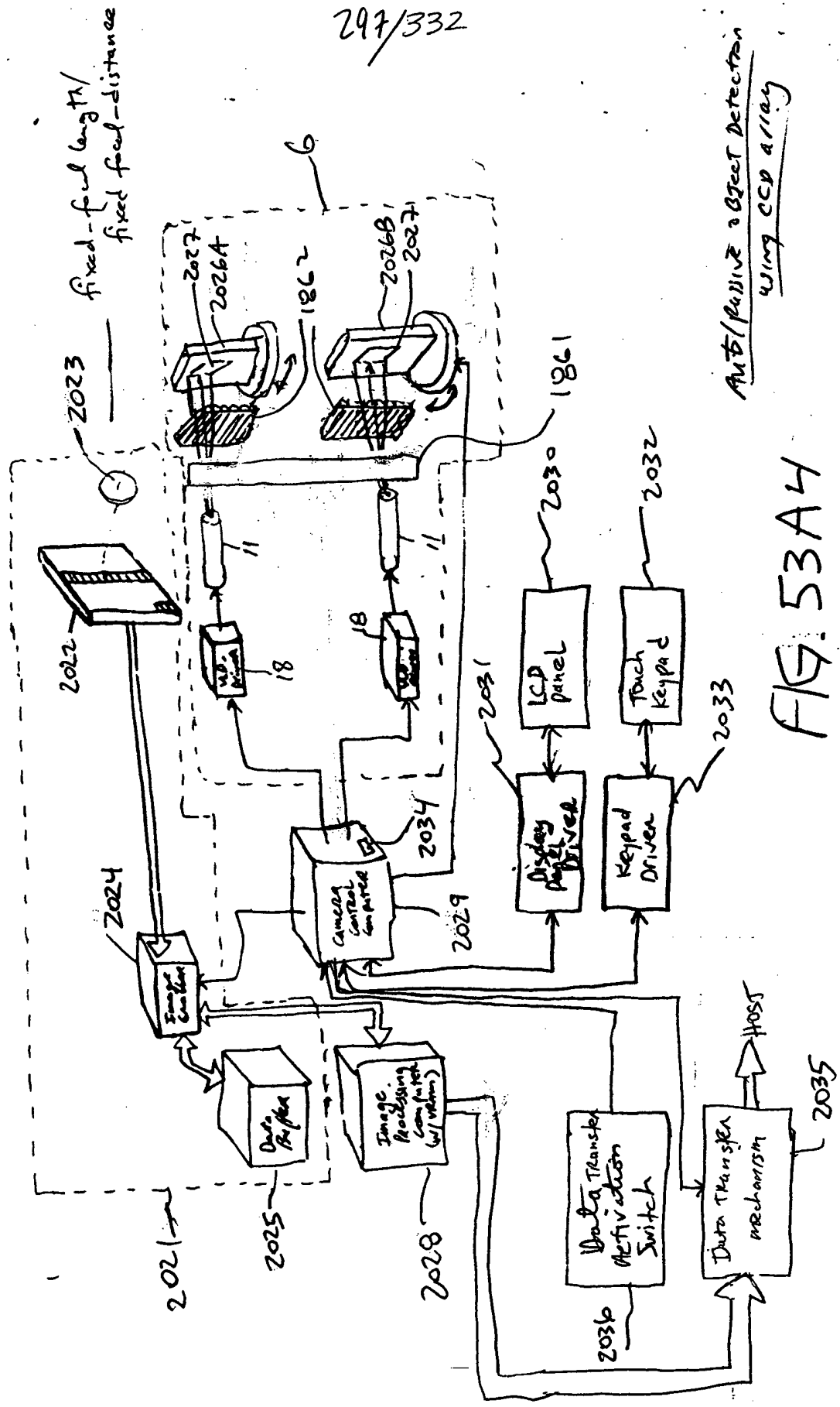
2000



2022 0154300

297/332

2020 →



Auto/Passive Object Detection
using CCD array

FIG. 53A4

2040 ↗

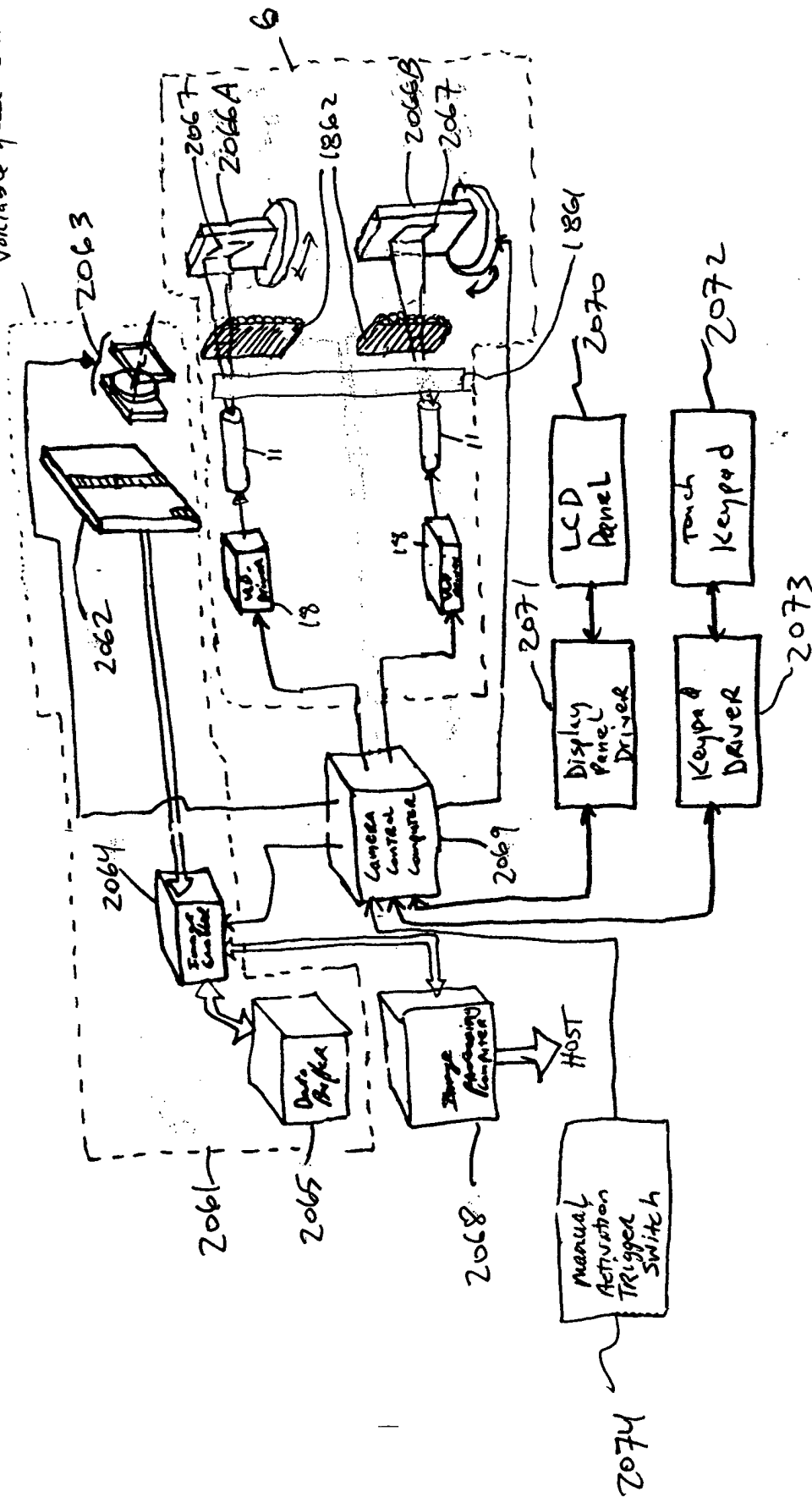
Auto / BCD only ; no object detection



2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073

2060 →

fixed focal length /
variable focal distance



299/332

FIG. 53B1

2080

fixed focal length /
variable focal distance

300/332

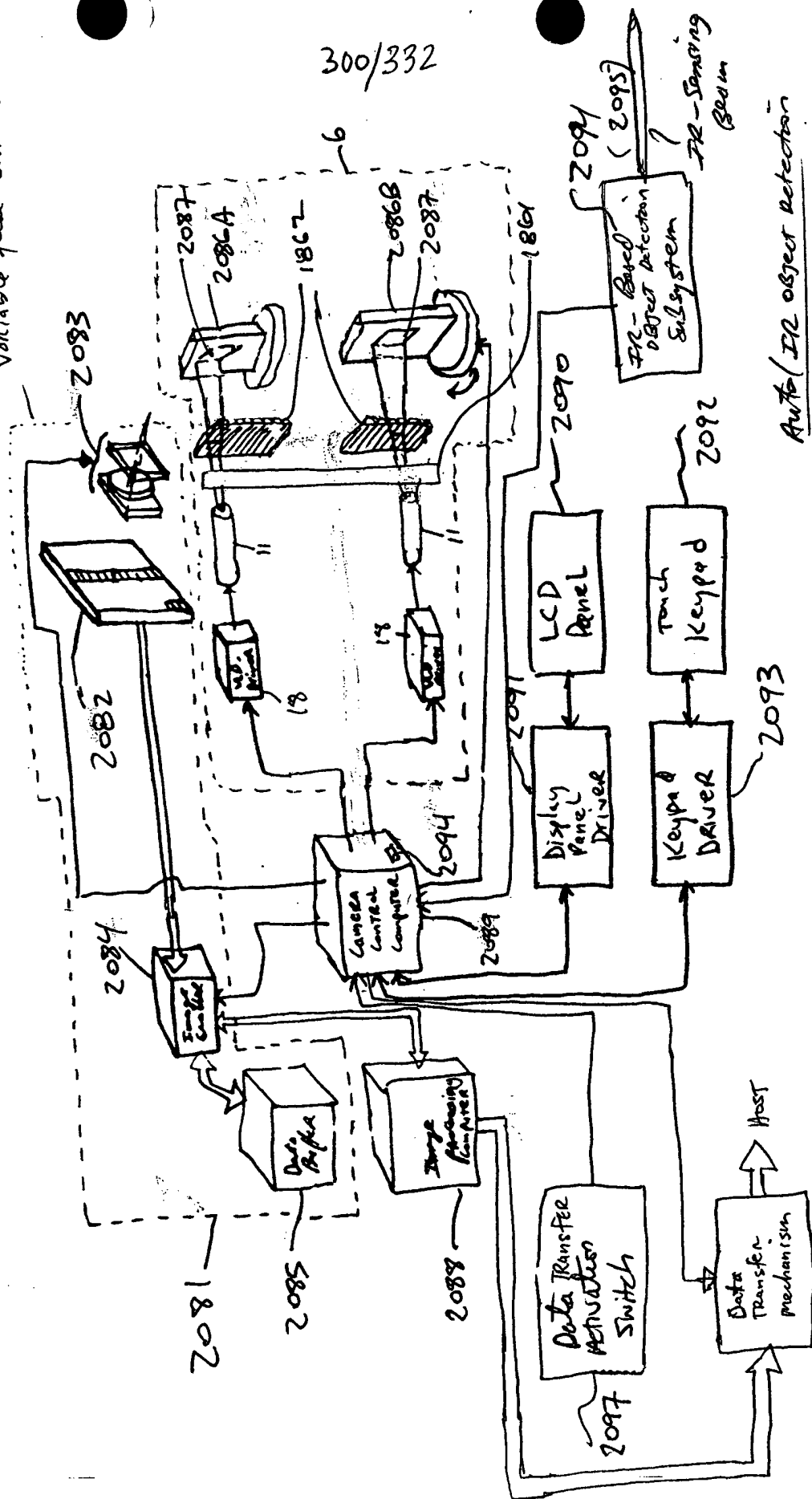


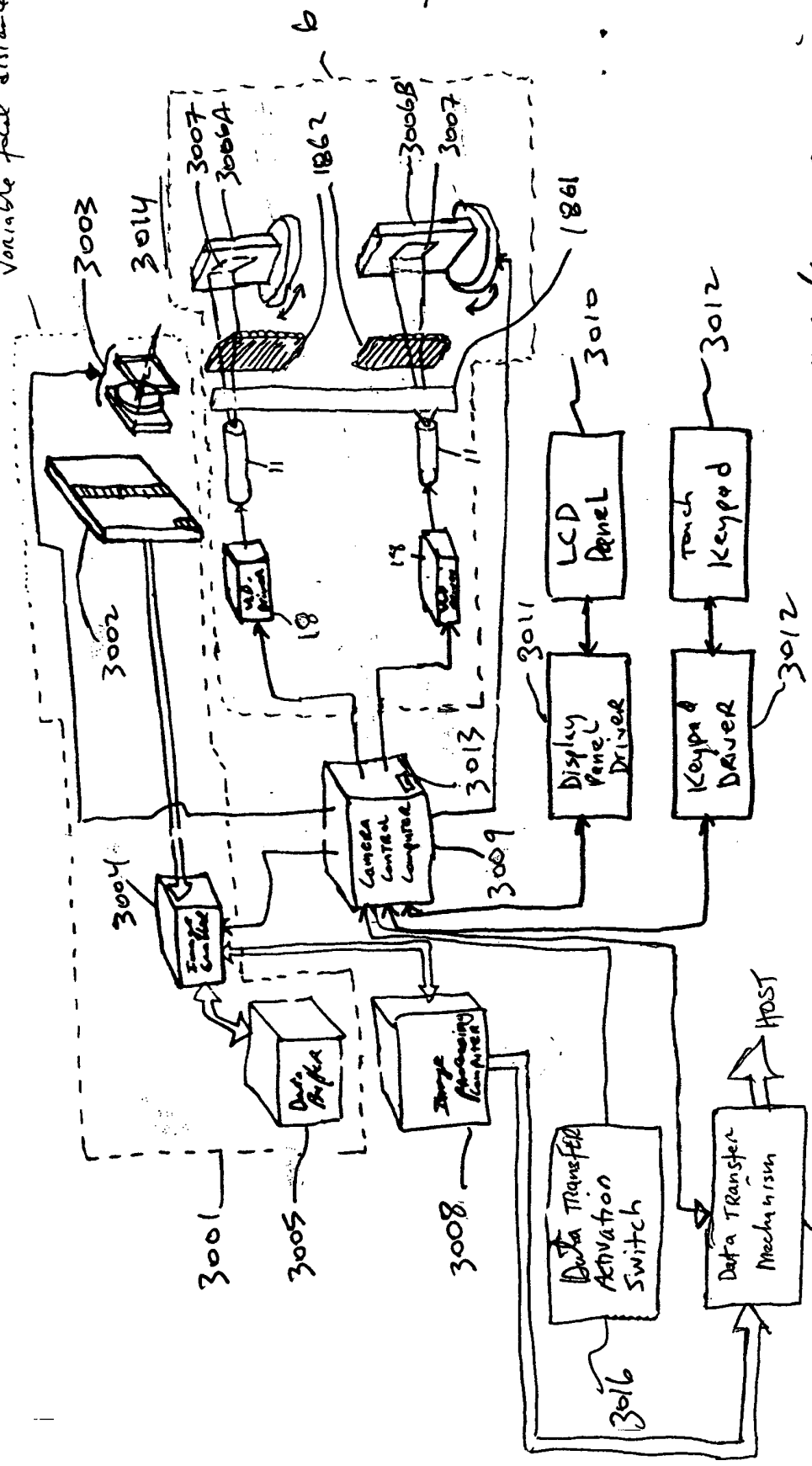
FIG. 53B2

2096

301/332

3000

fixed focal length /
variable focal distance



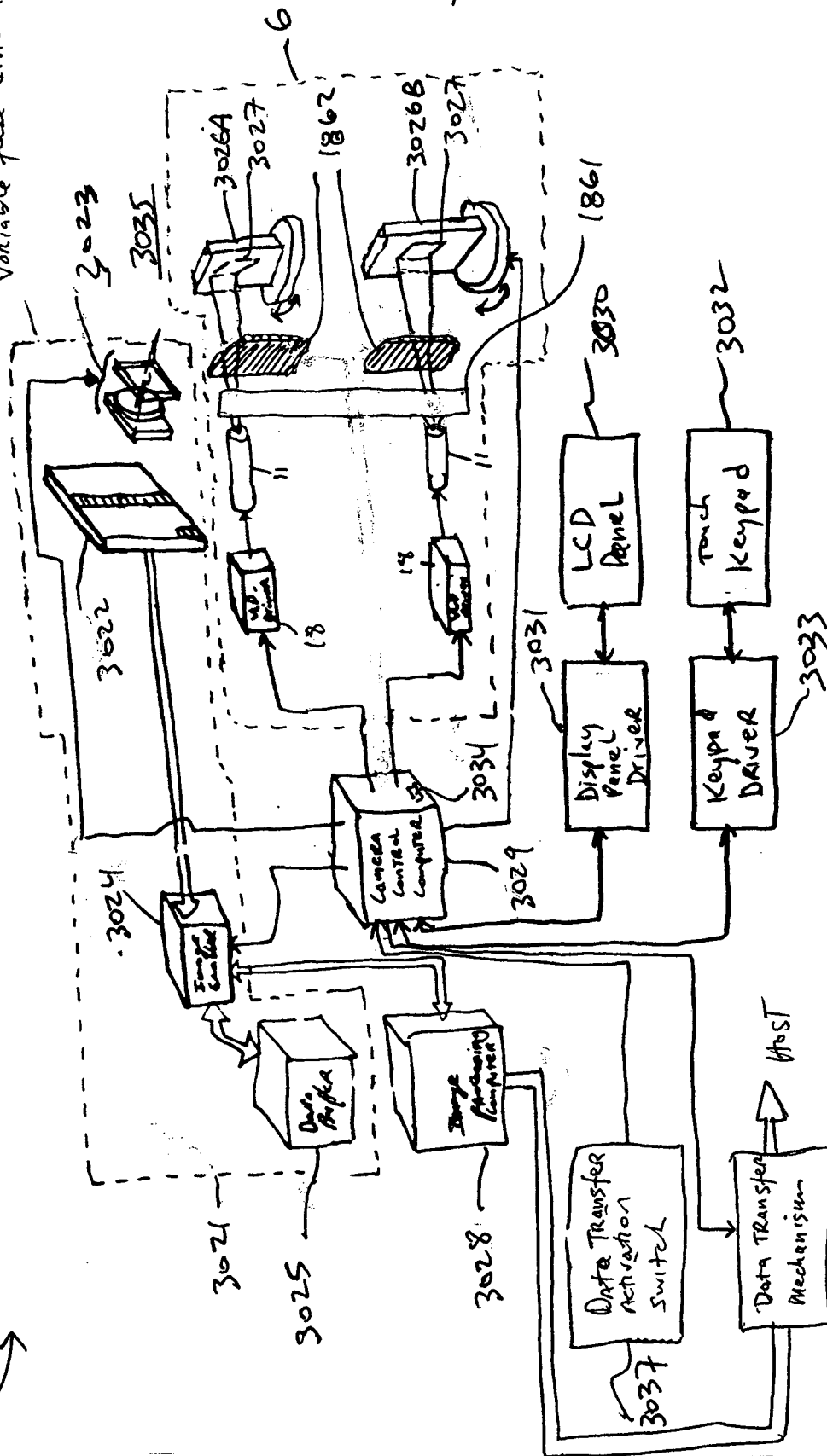
Auto/Manual object detection

FIG. 53B3

302/332

3020

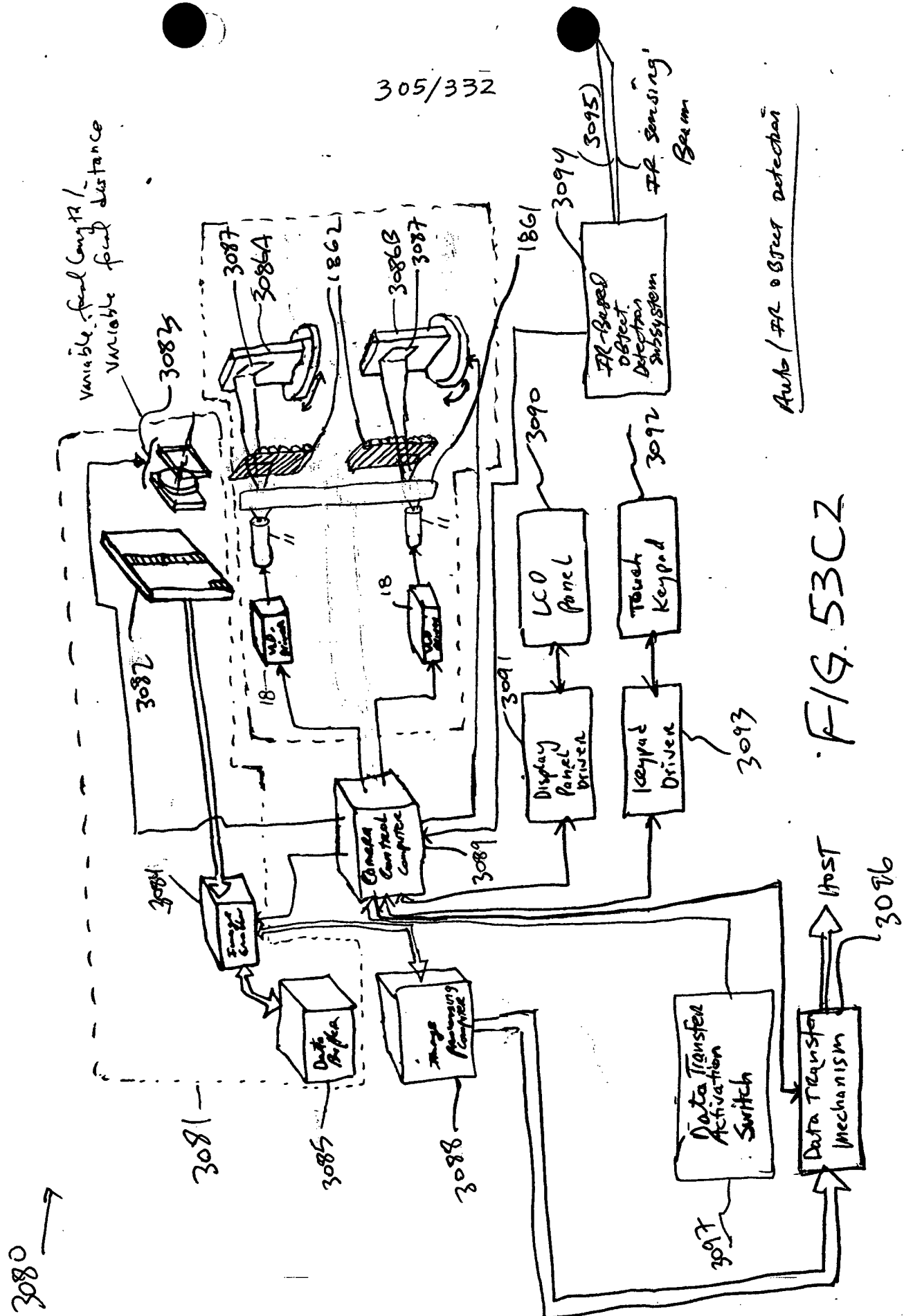
fixed focal length/
variable focal distance



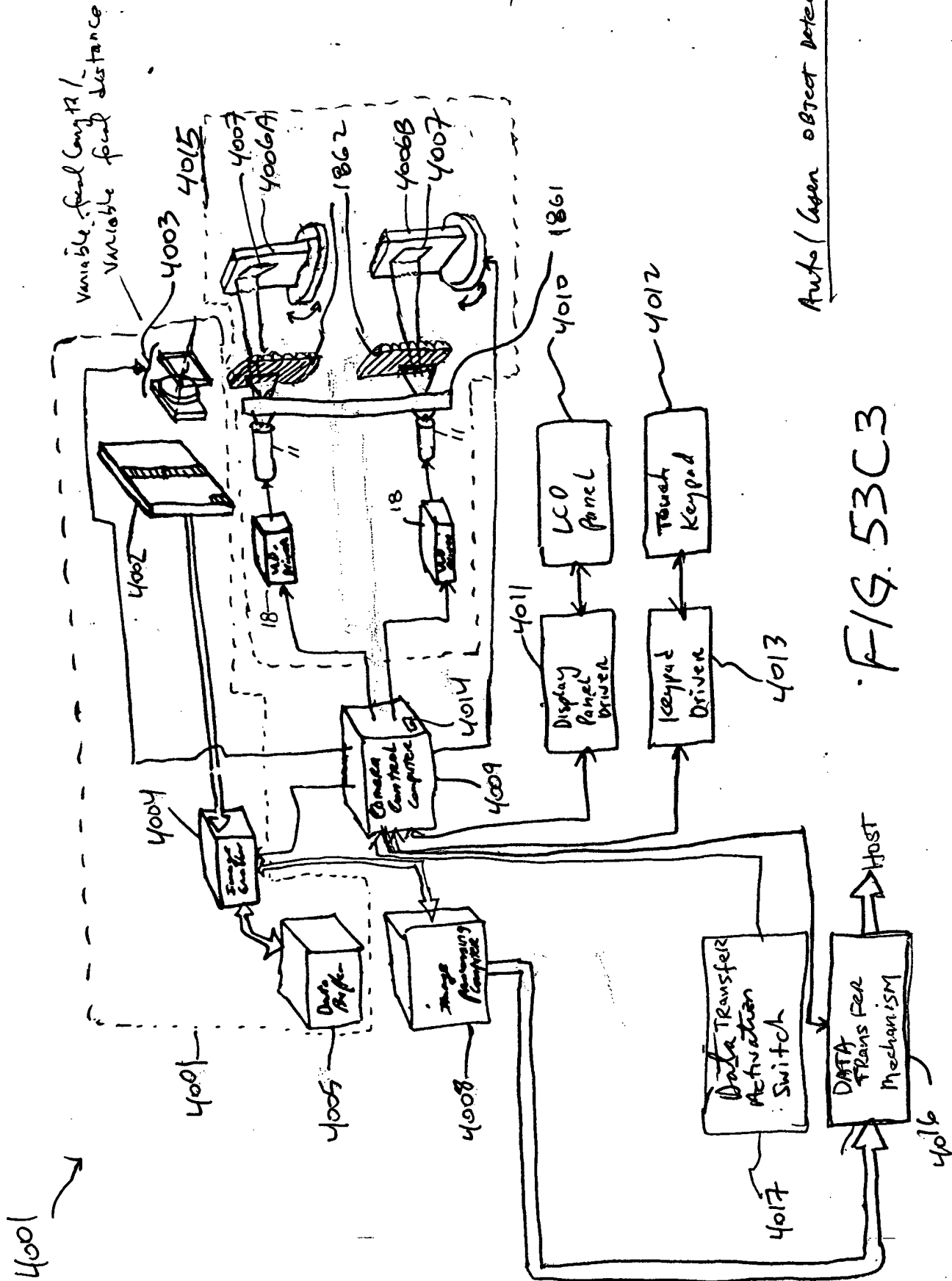
Active/Passive Object Detection
using CCD array

FIG. 53B4

3036

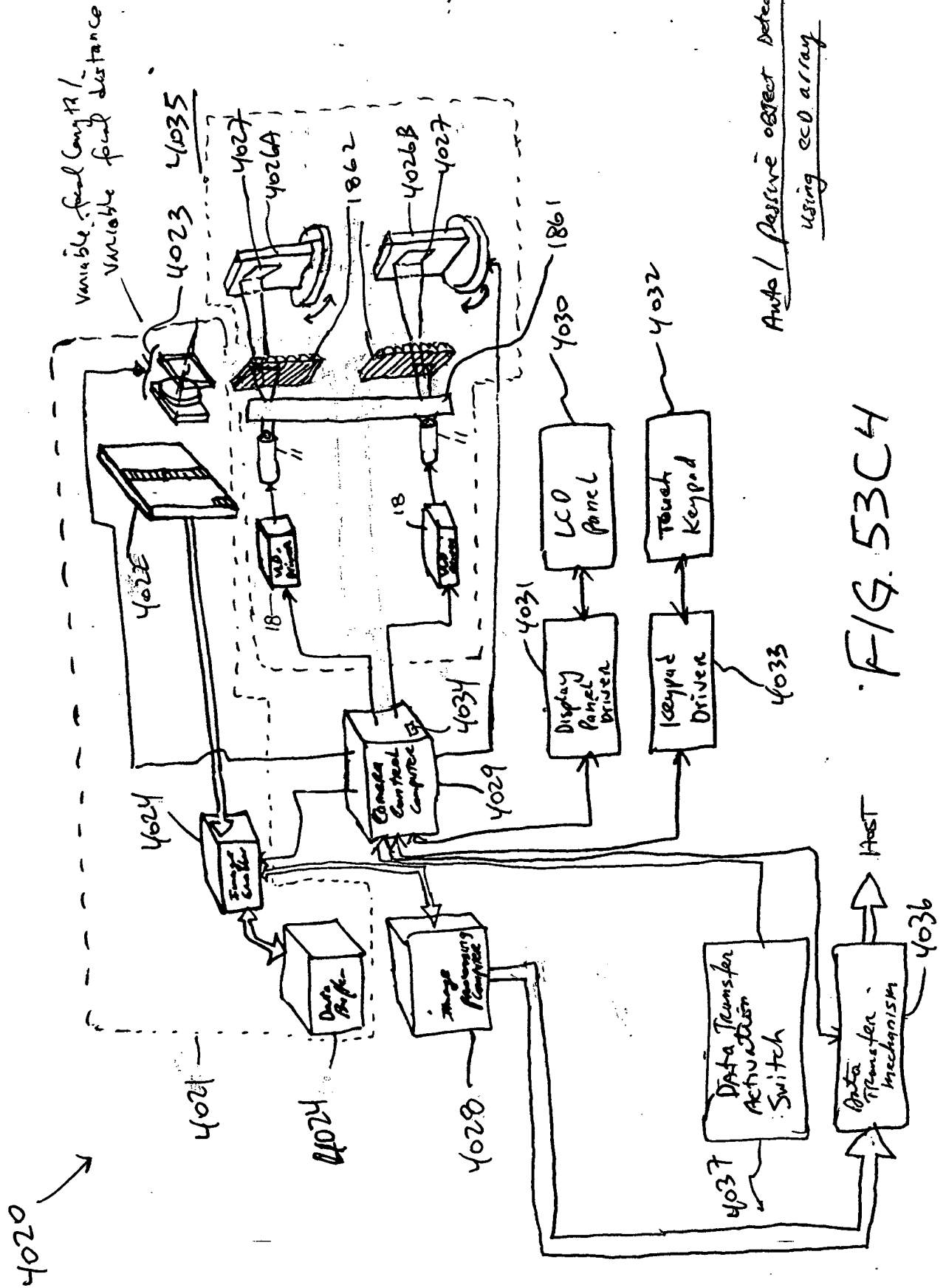


Auto / User Object Detection



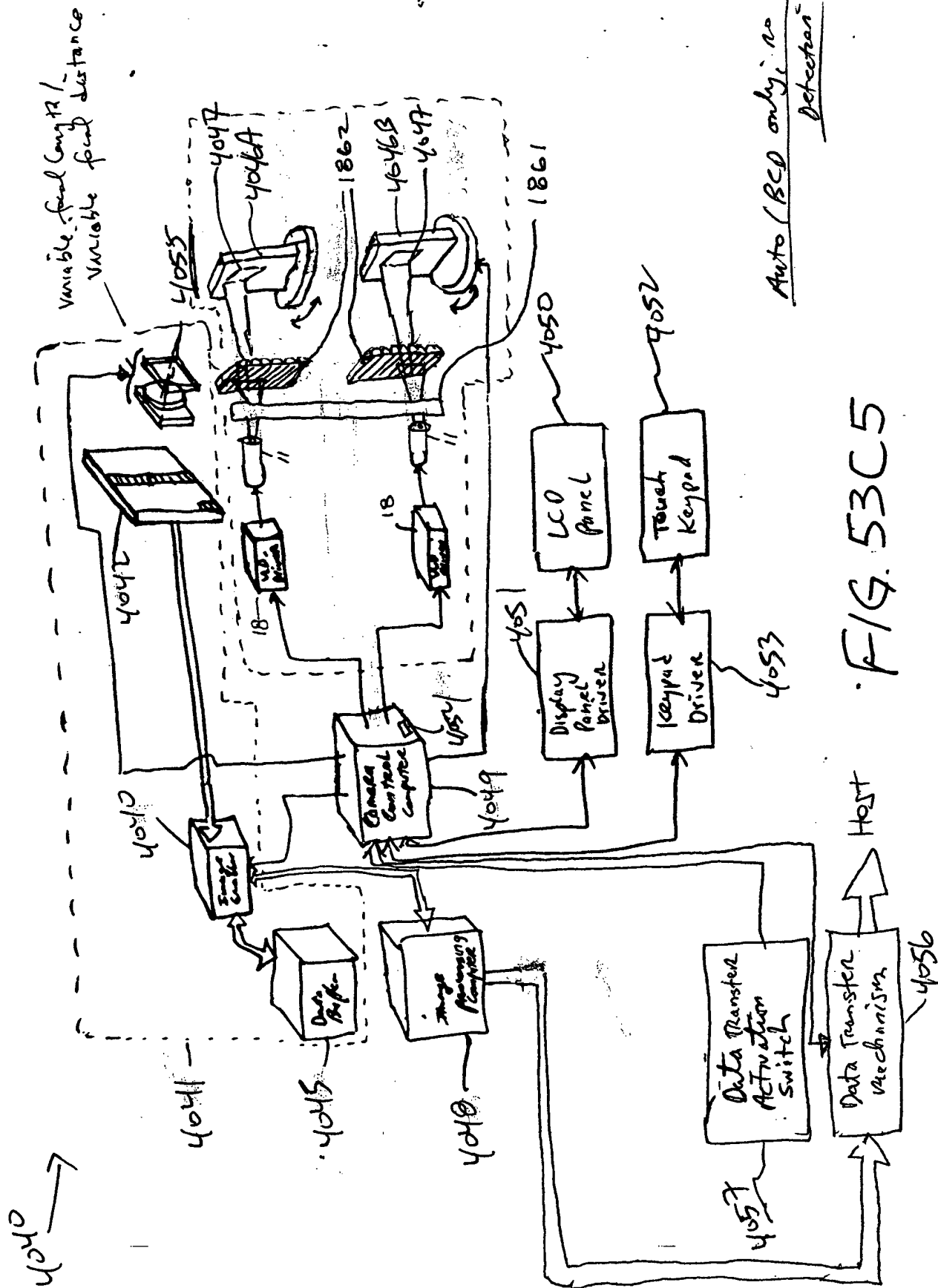
F/G. 53C3

307/332



Auto / Passive object Detection
using CCD array

Auto (BCD only): no object
Detection



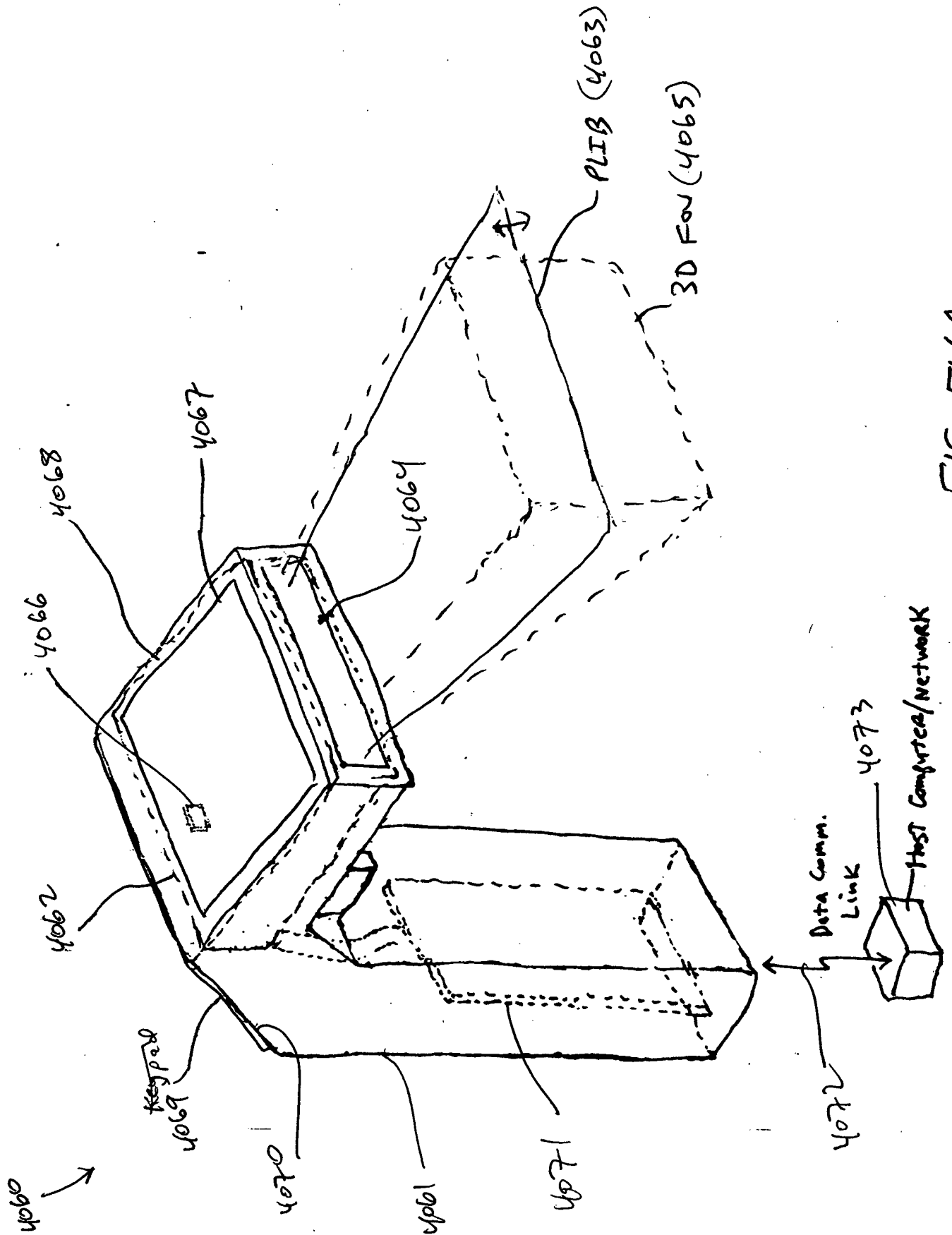


FIG. 54A

310/332

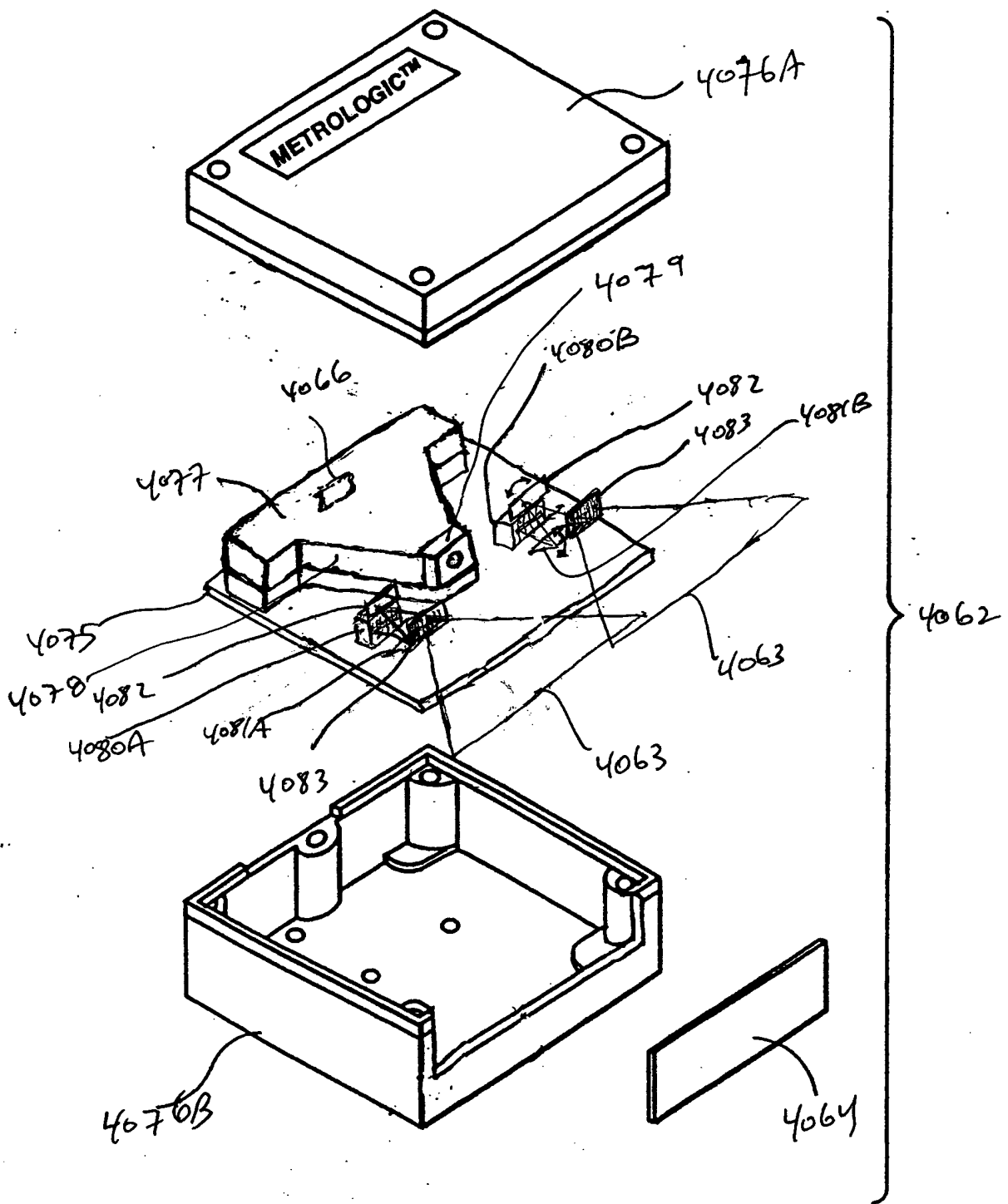


FIG. 54B

(dual mirrors)

Fig. 175A-SP1

312/332

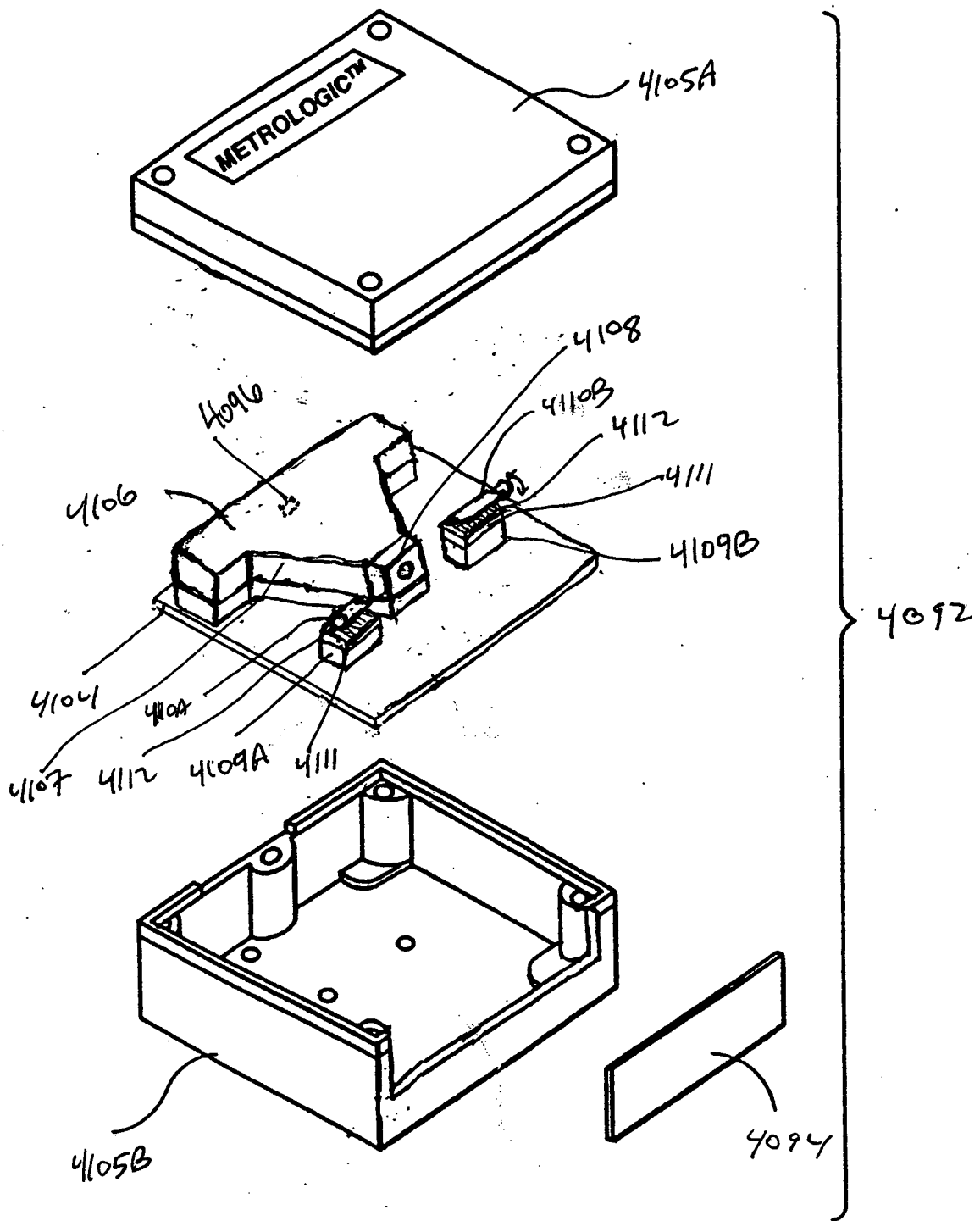


FIG. 55B

Brogs cell
Fig. 116A-6B

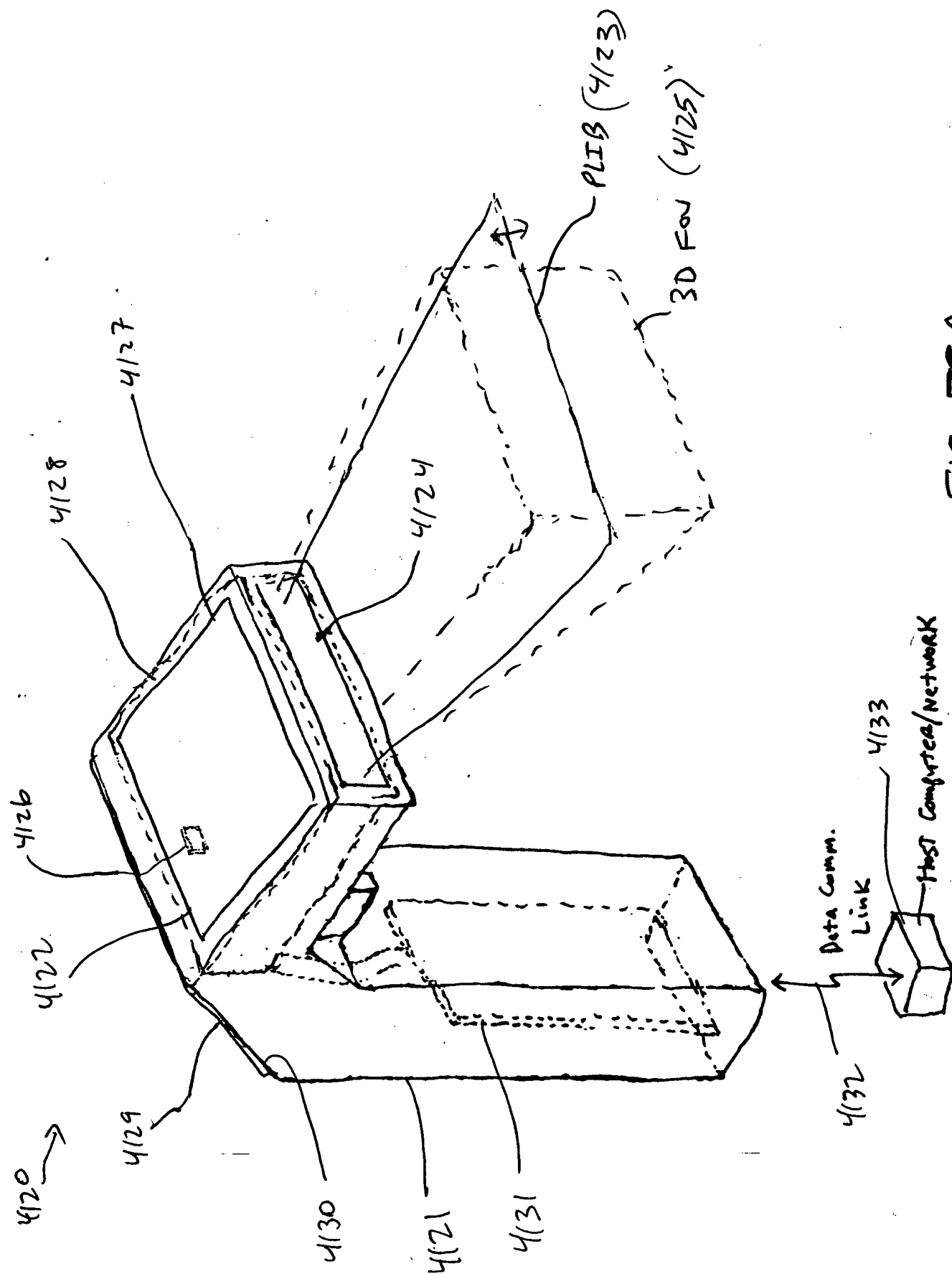


FIG. 56A

314/332

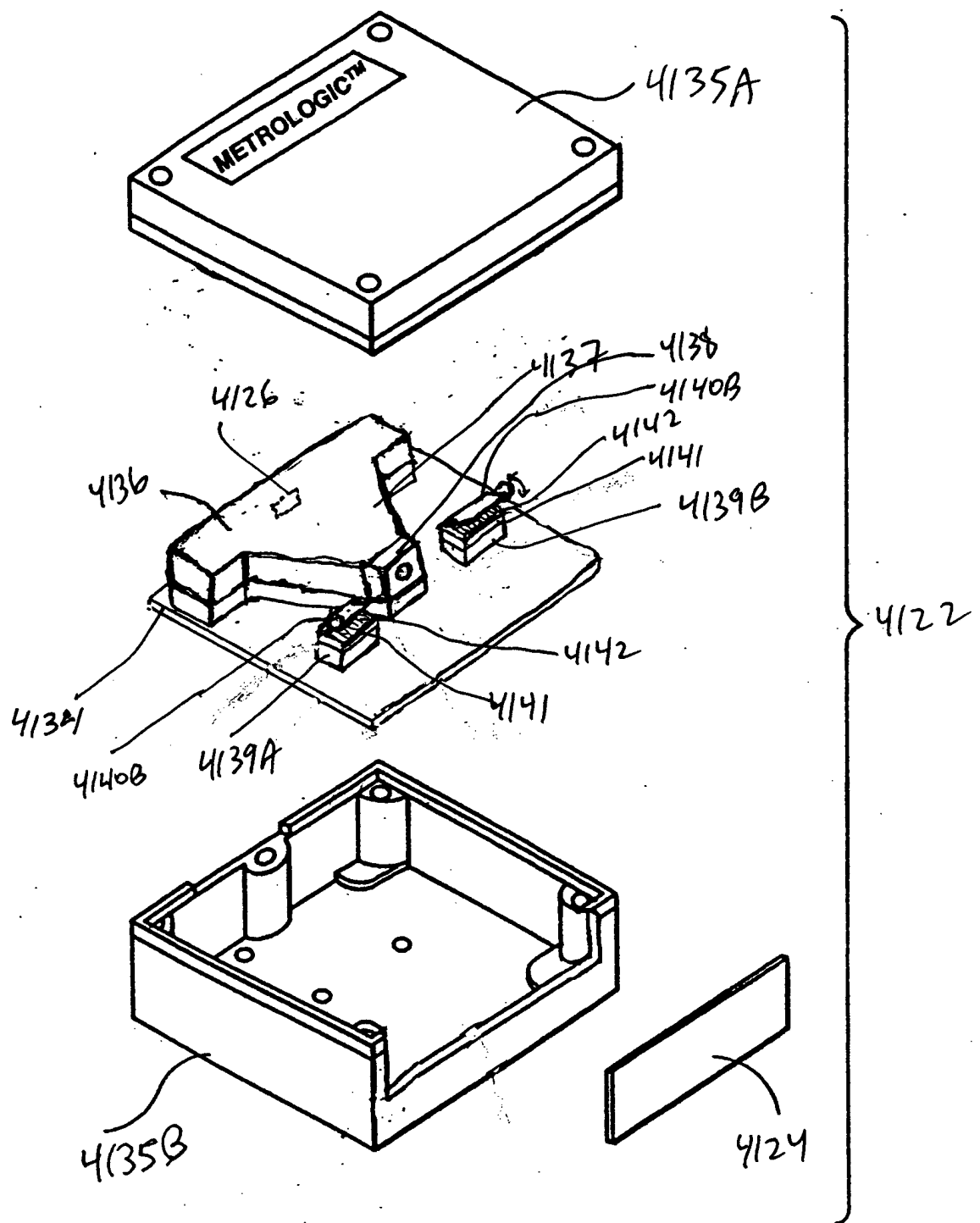


FIG. 56B

DM

Fig. 1I 7A-7C

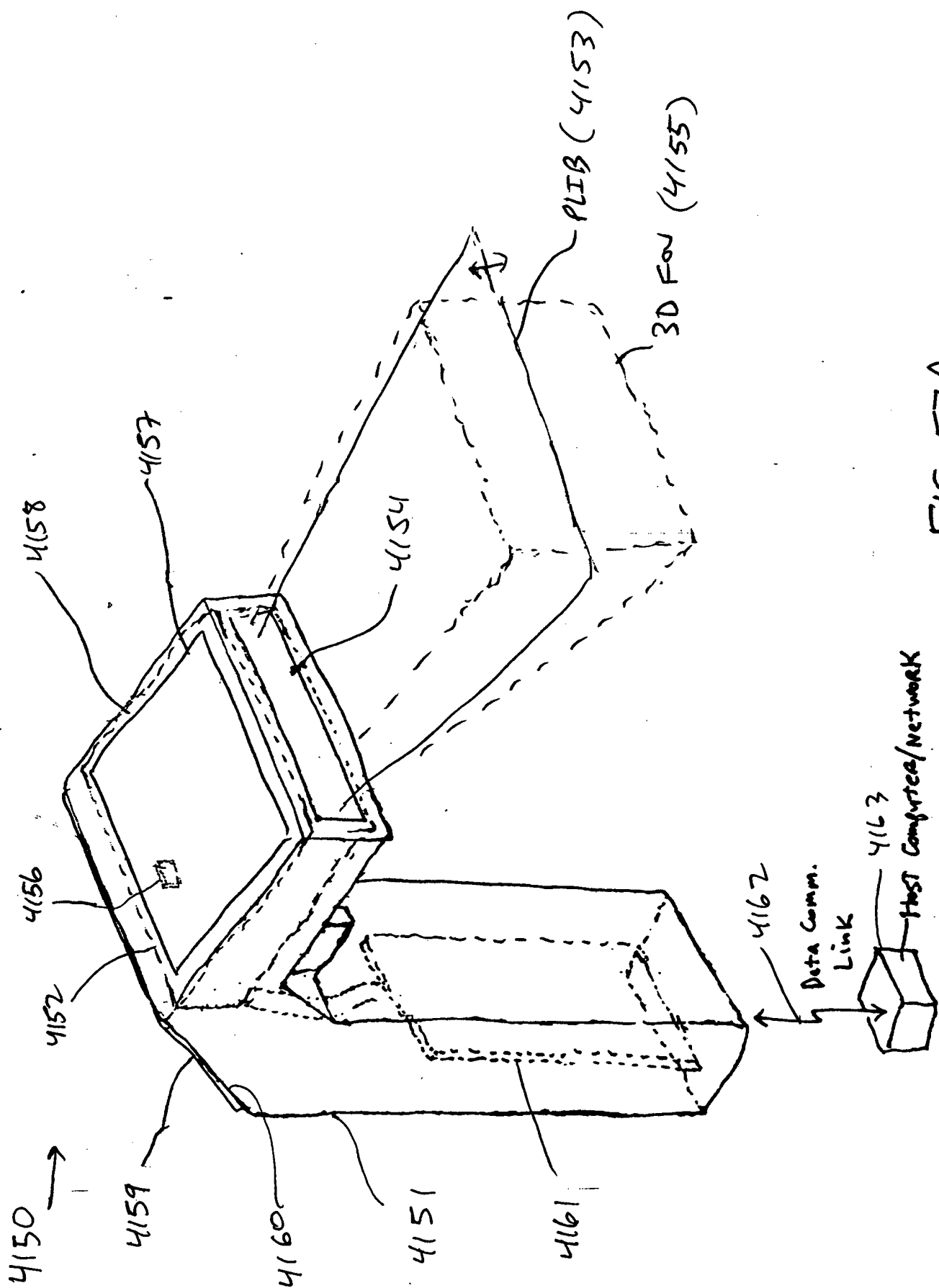


FIG. 57A

346/332

00500 0152500

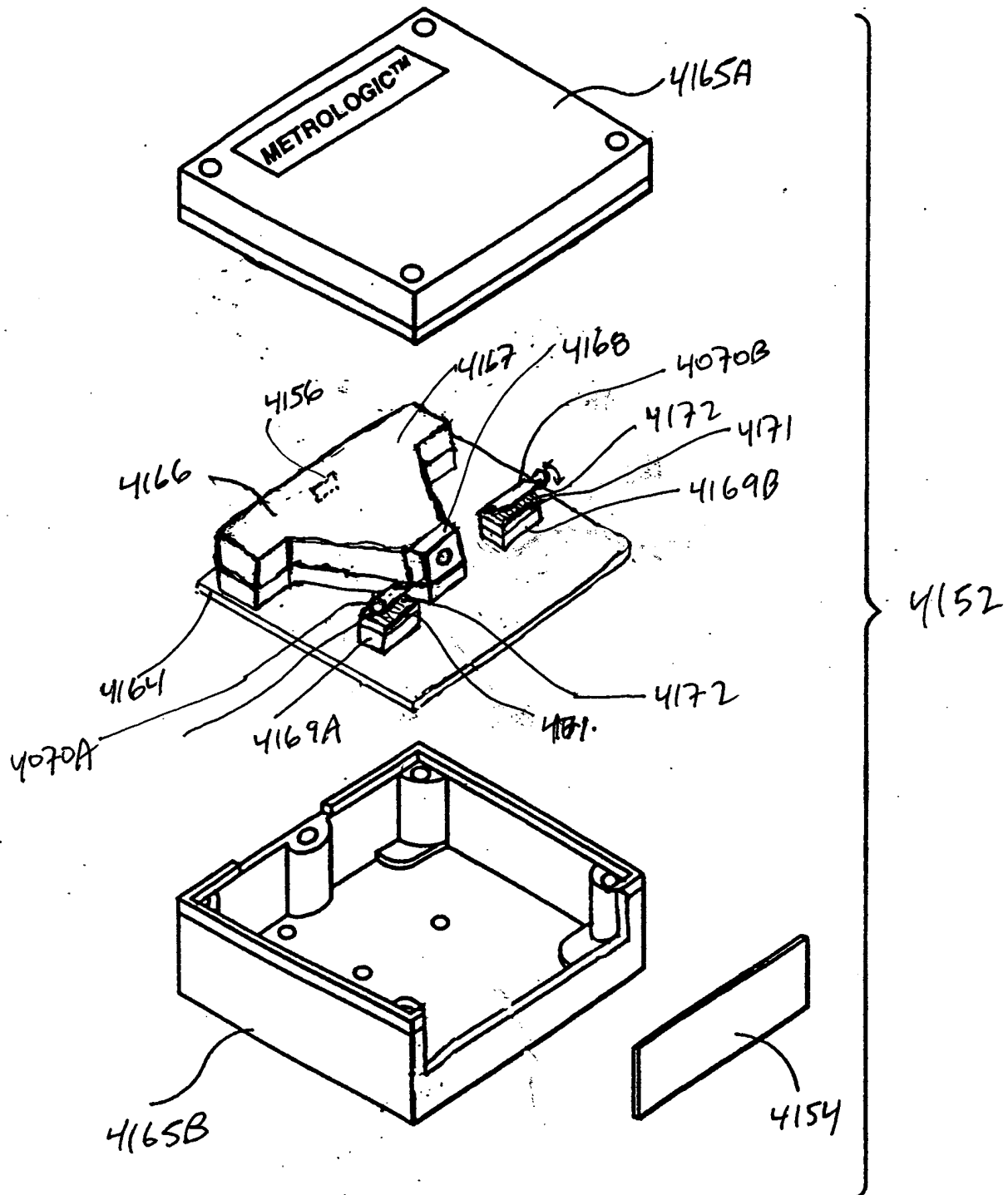


FIG. 57B

please only LCR
pin panel

Fys 178F-86

317/332

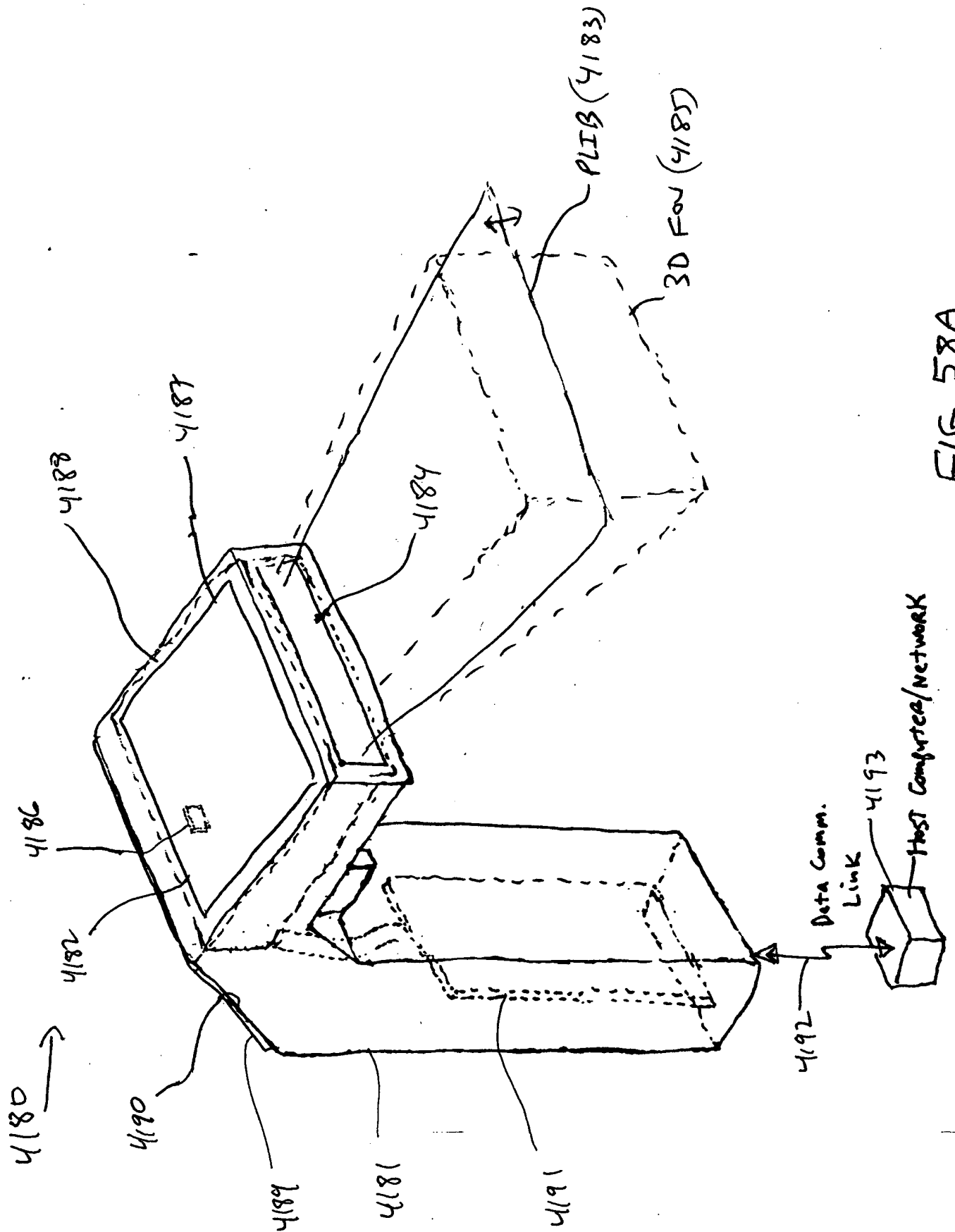


FIG. 58A

318/332

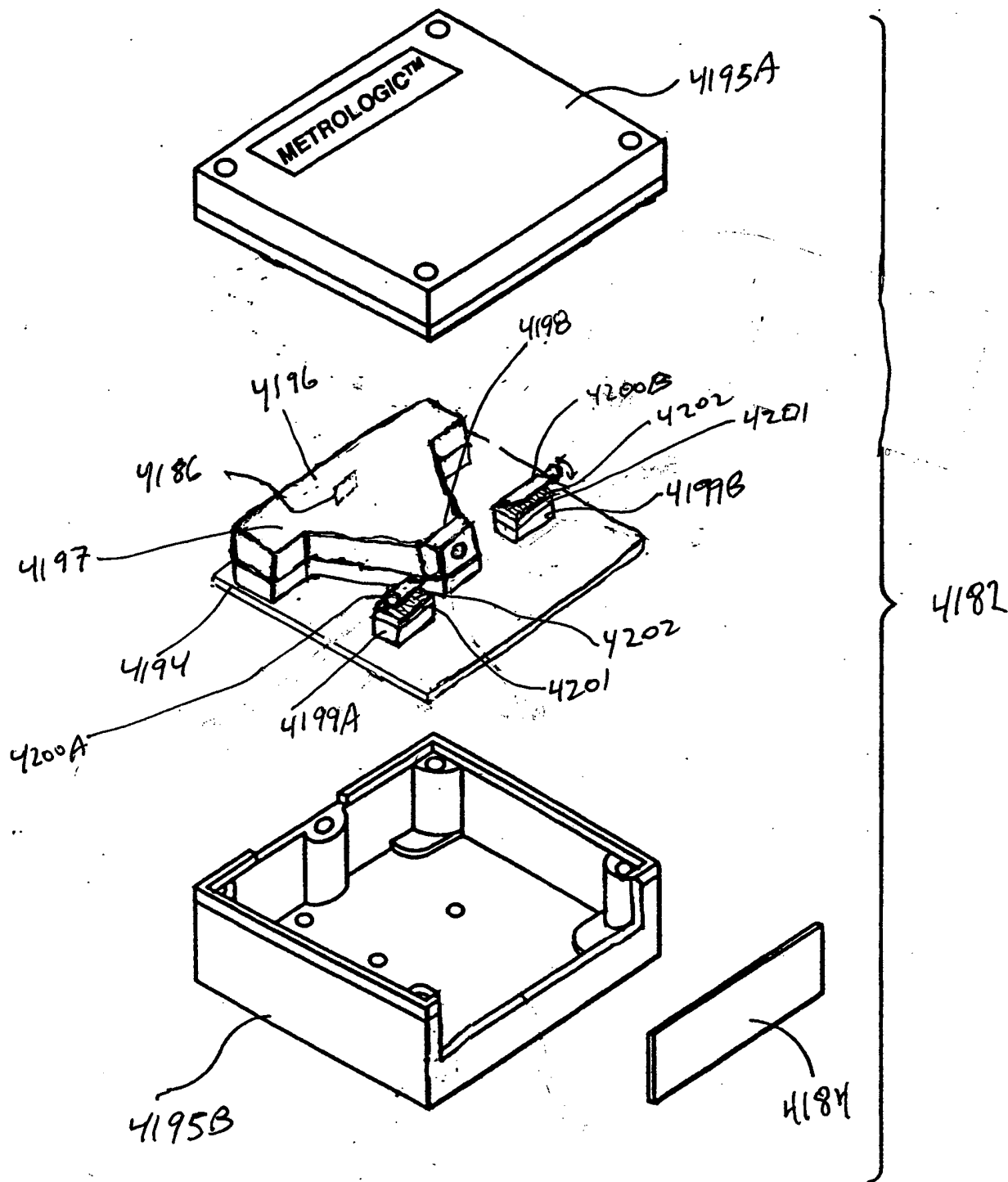


FIG. 58B

HS optical shutter

Fig. 1F14A-14B

319/332

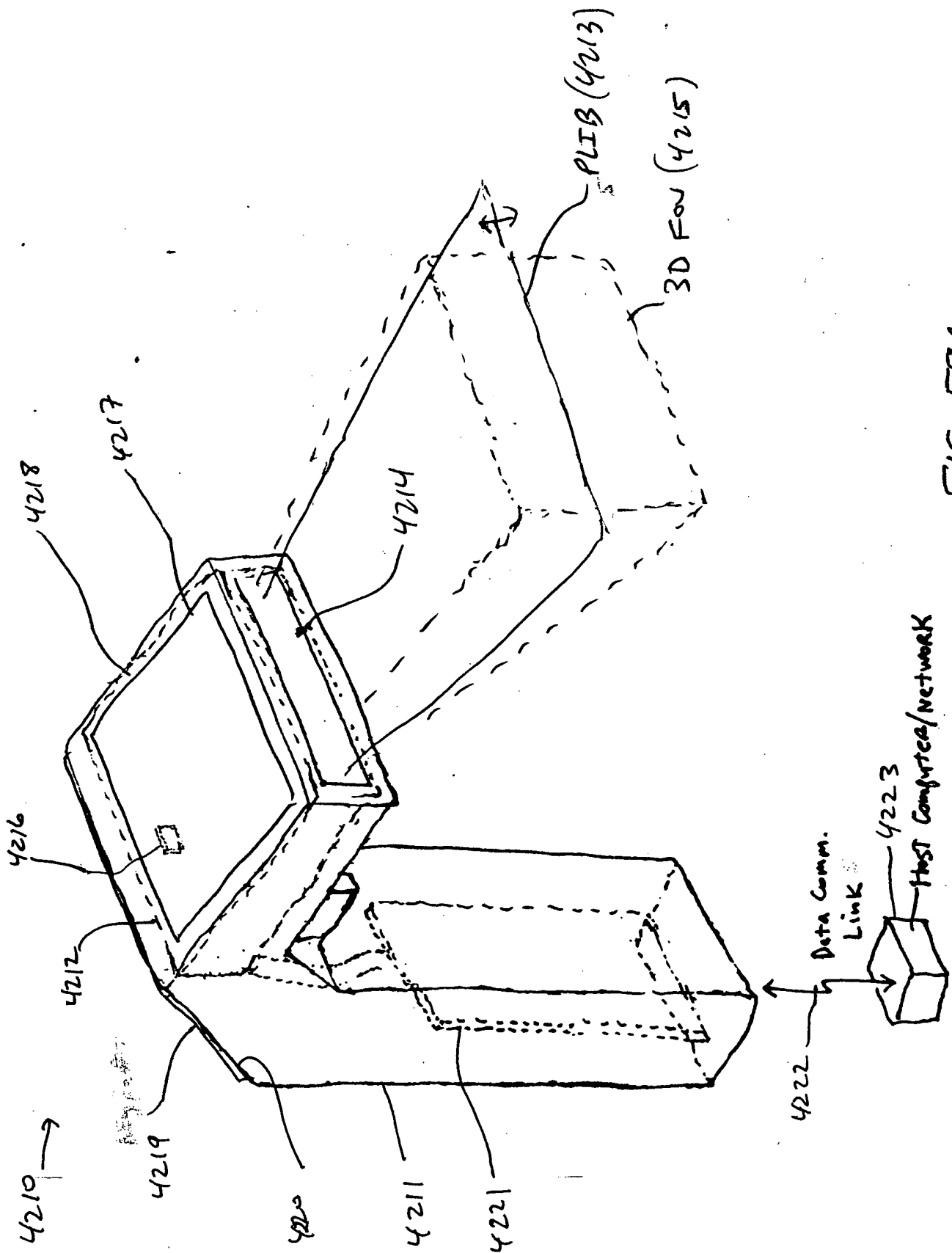


FIG. 59A

320/332

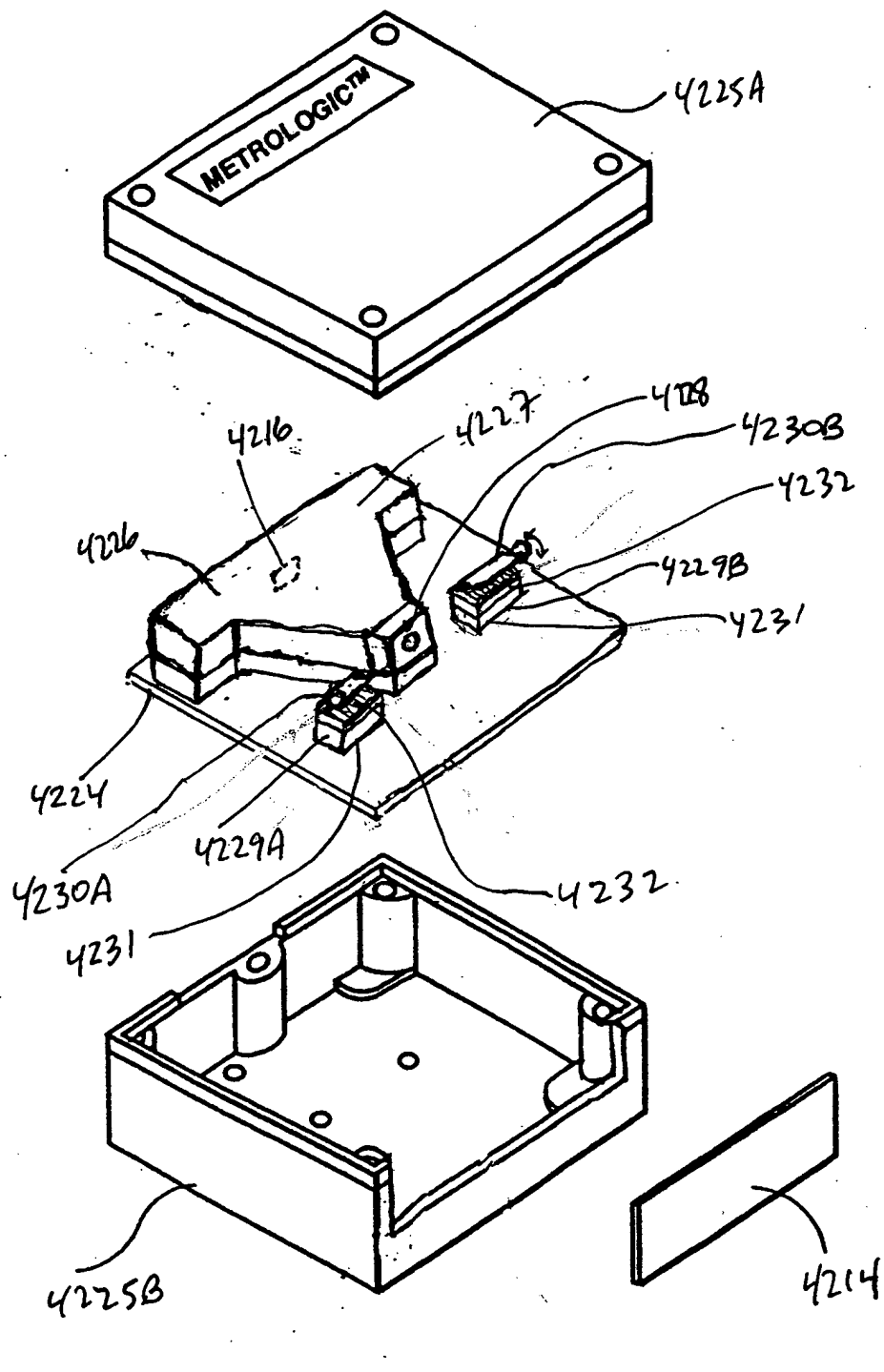


FIG. 59B

MLLP
Fig. 15A-15B

321/332.

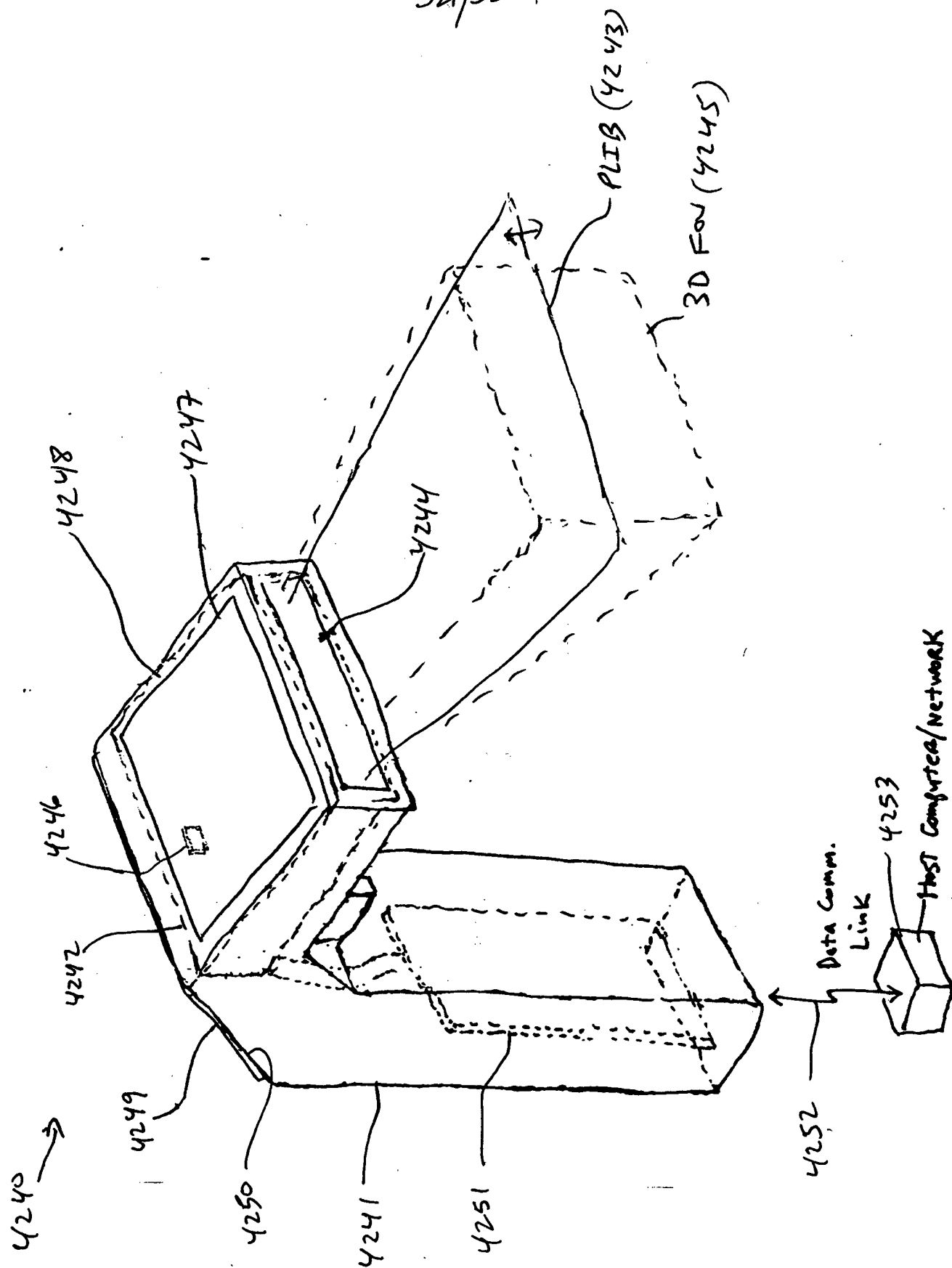


FIG. 60A

322/332

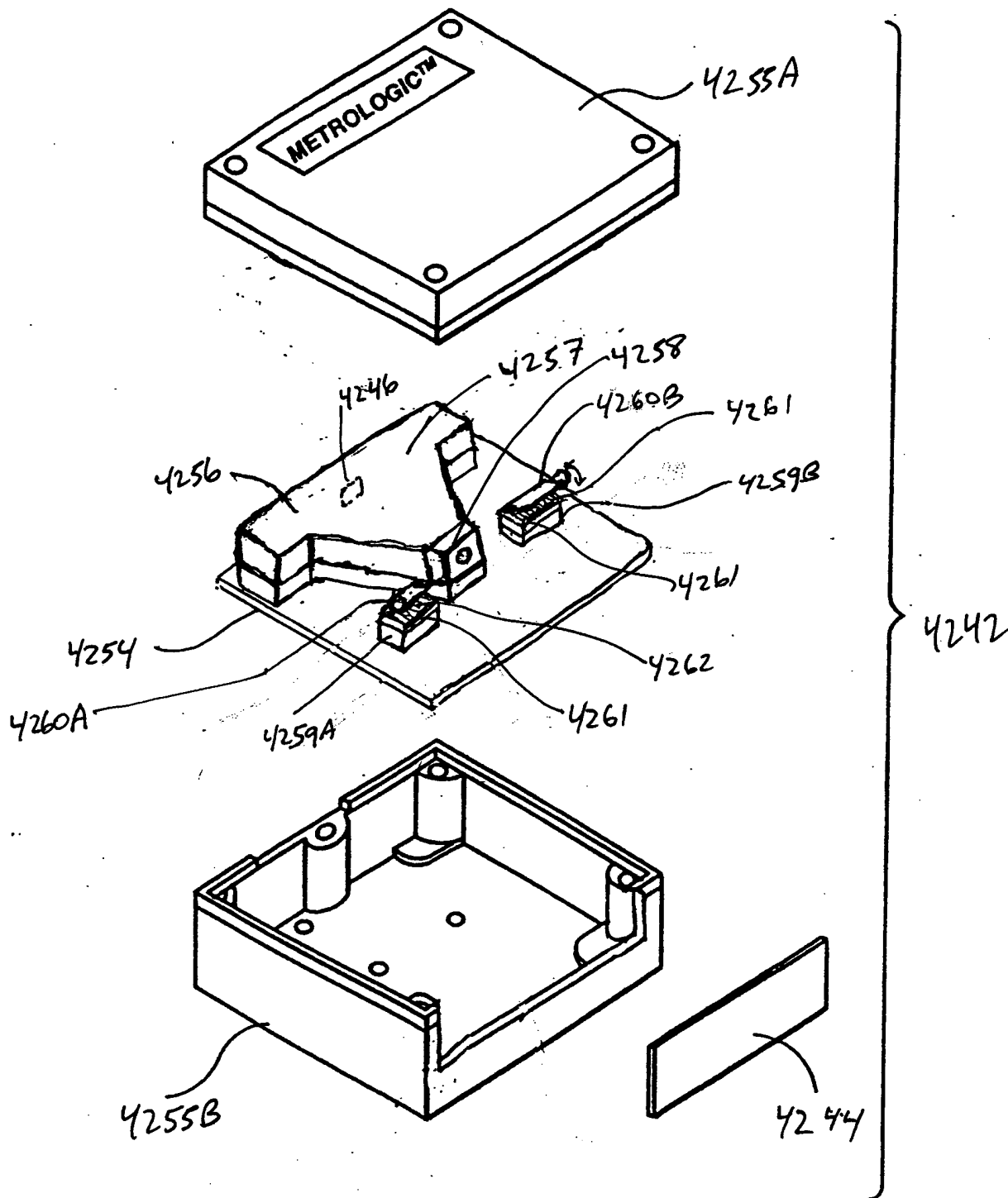


FIG. 60B

Bthalon (Tang. phase mod.)
Fig. 117A-17B

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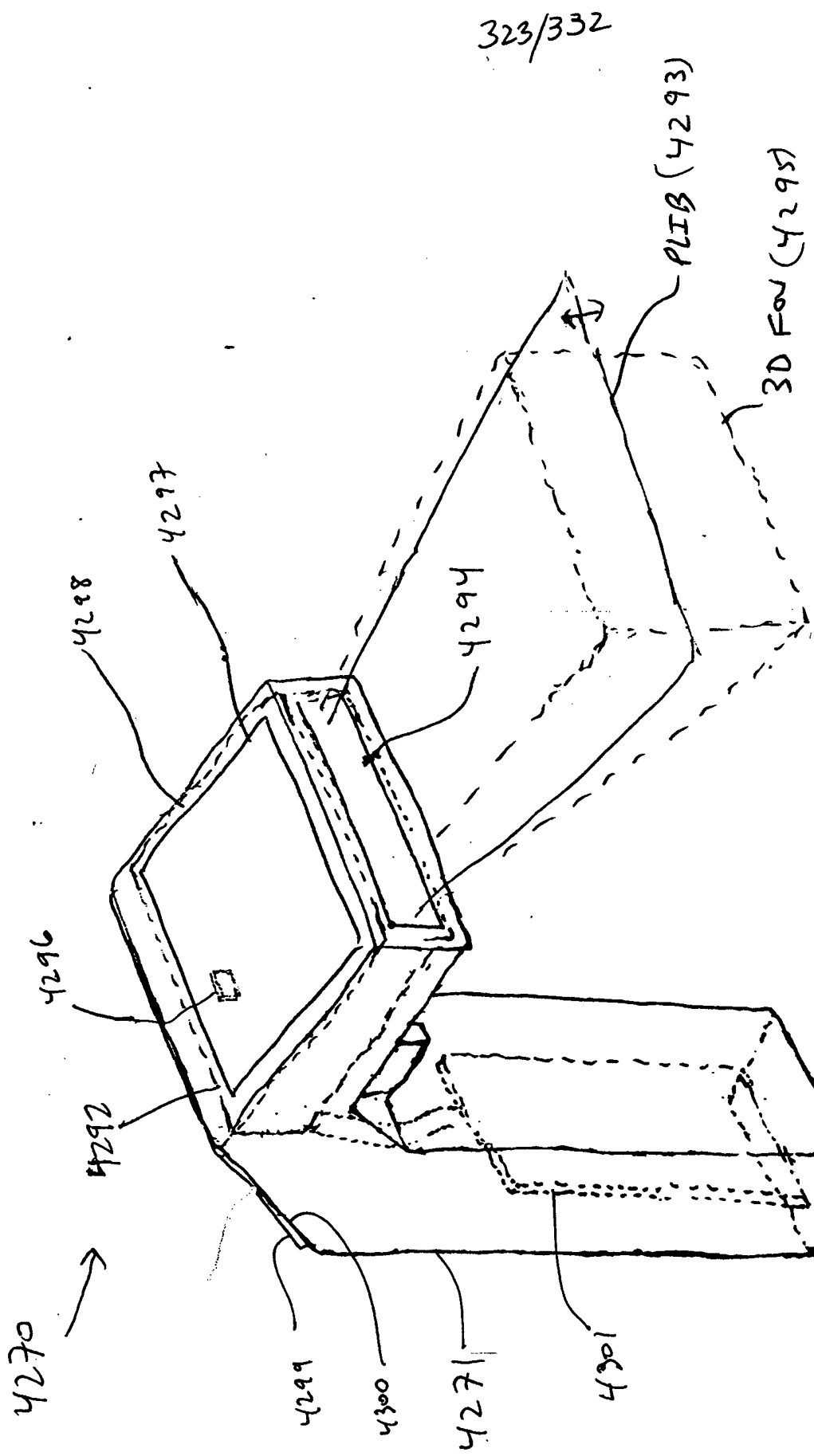


FIG. 61A

324/332

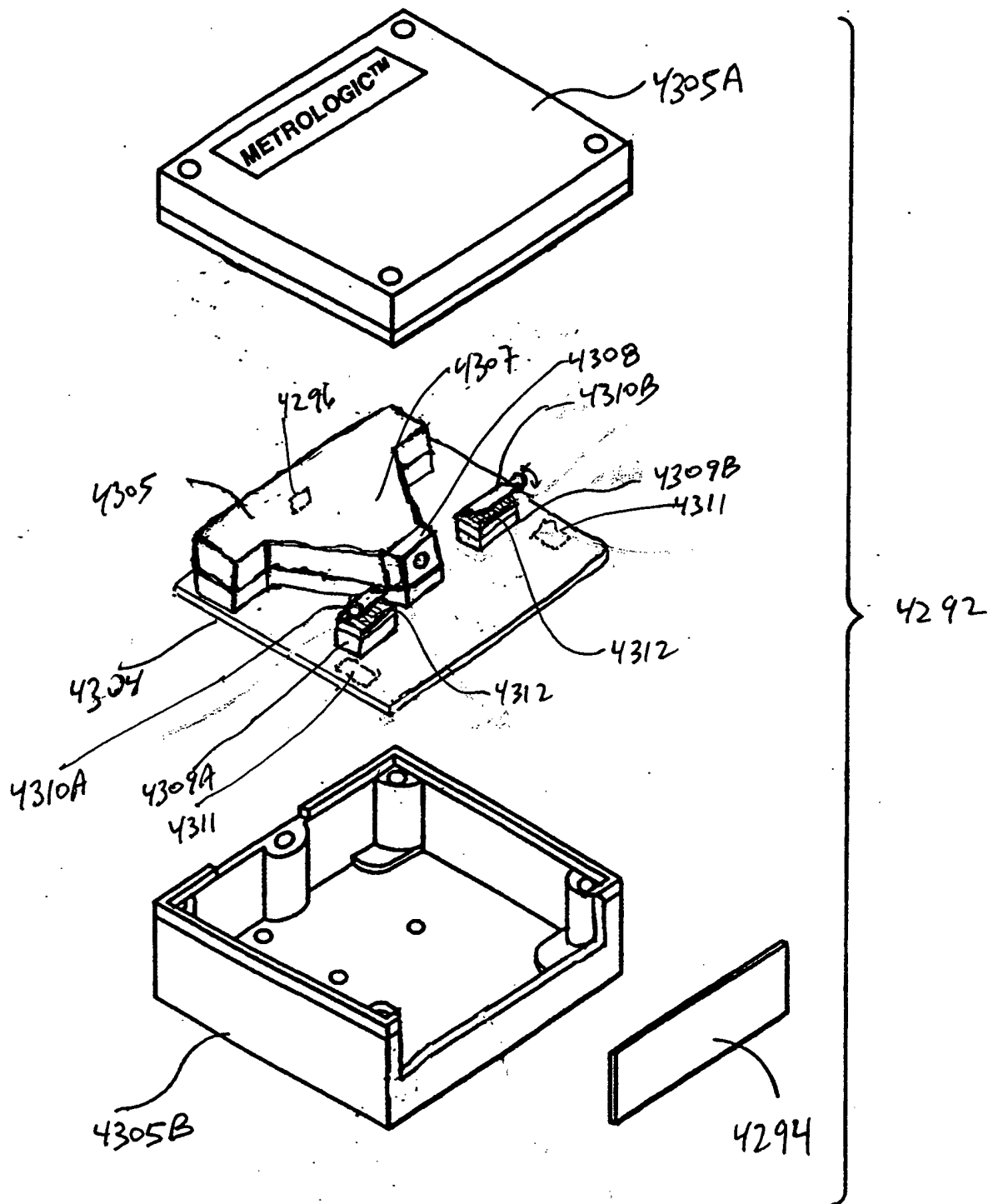


FIG. 61B

mod. hugging

Fig. 119A-19B

325/332

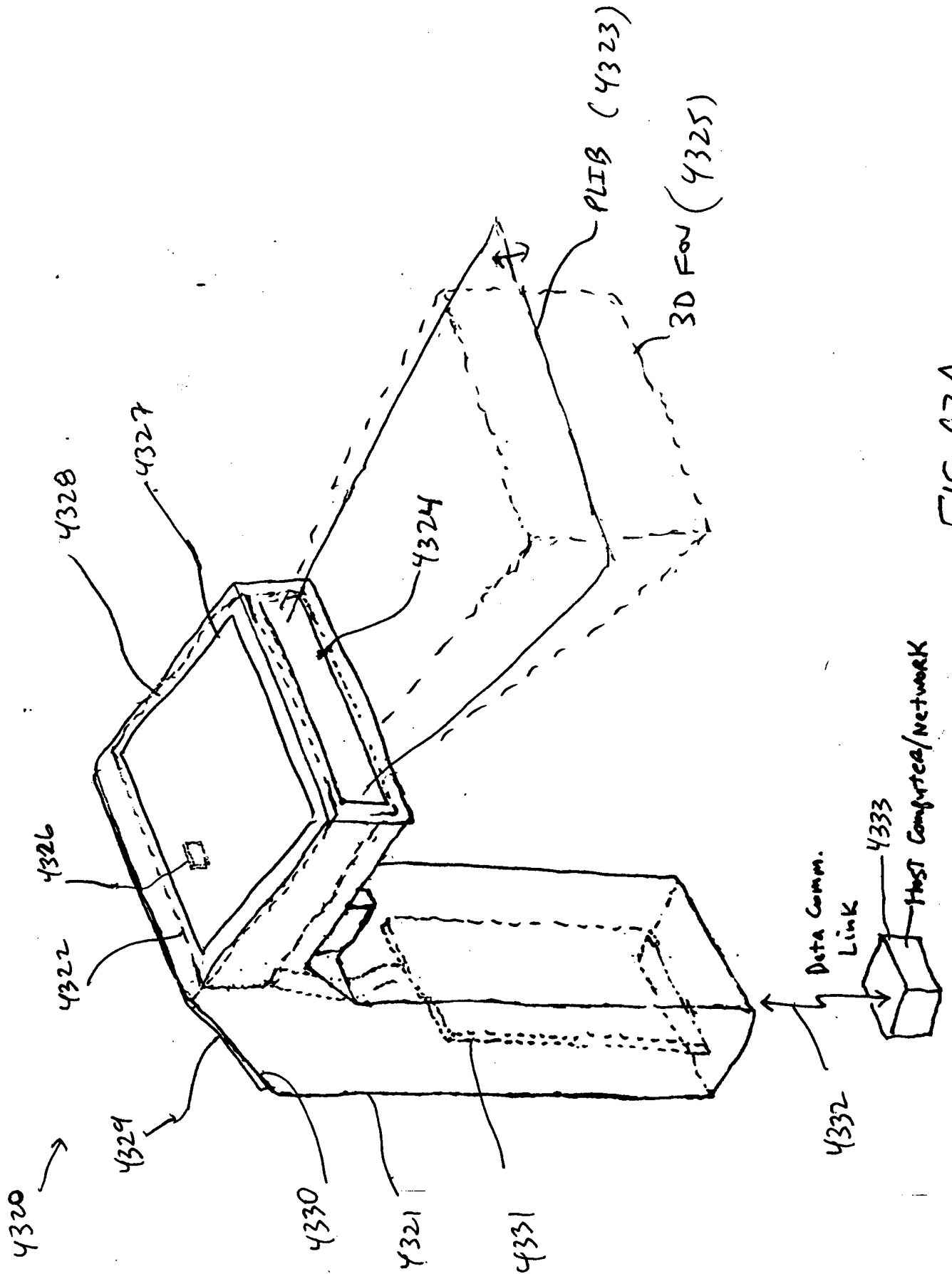


FIG. 62A

326/332

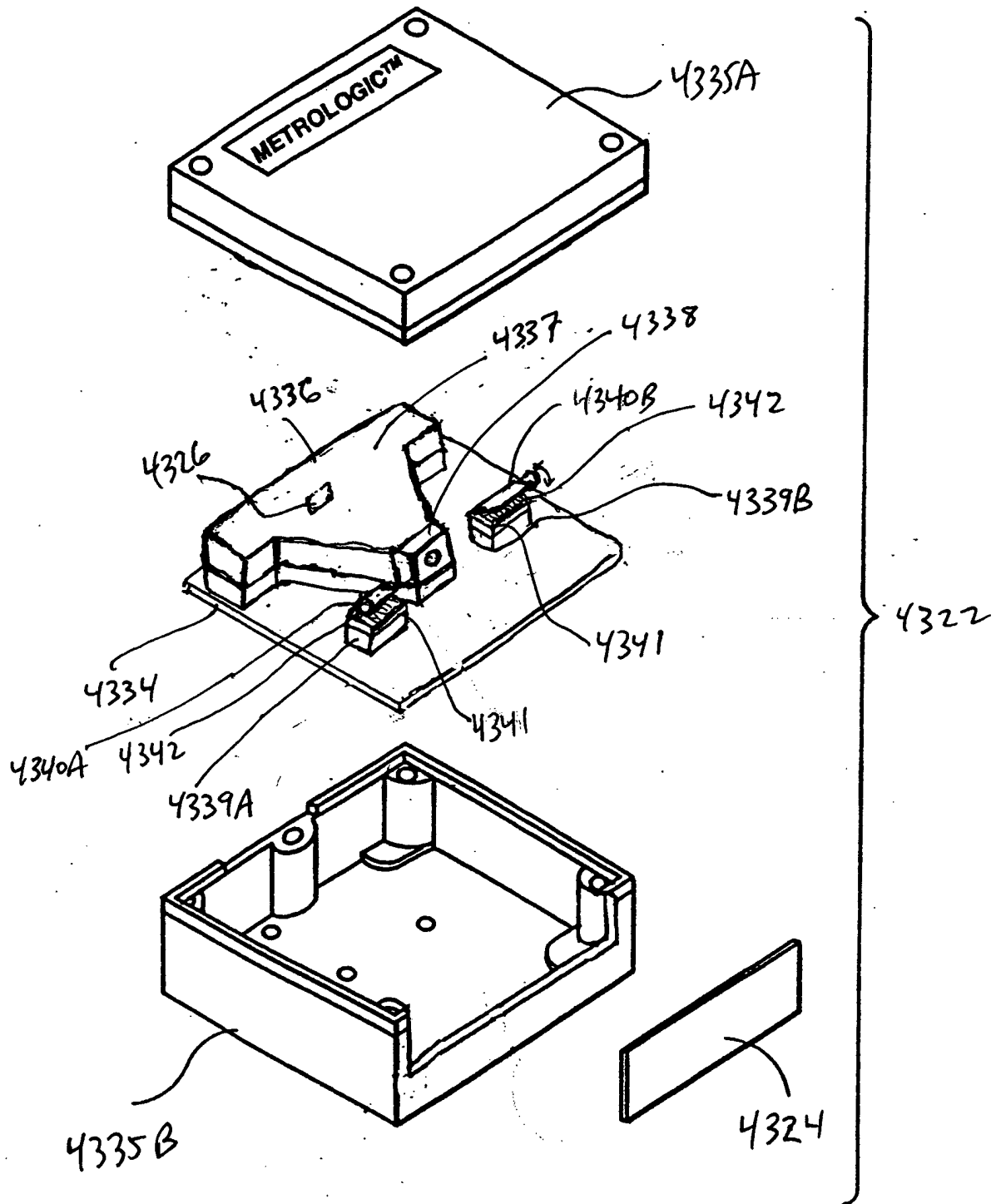
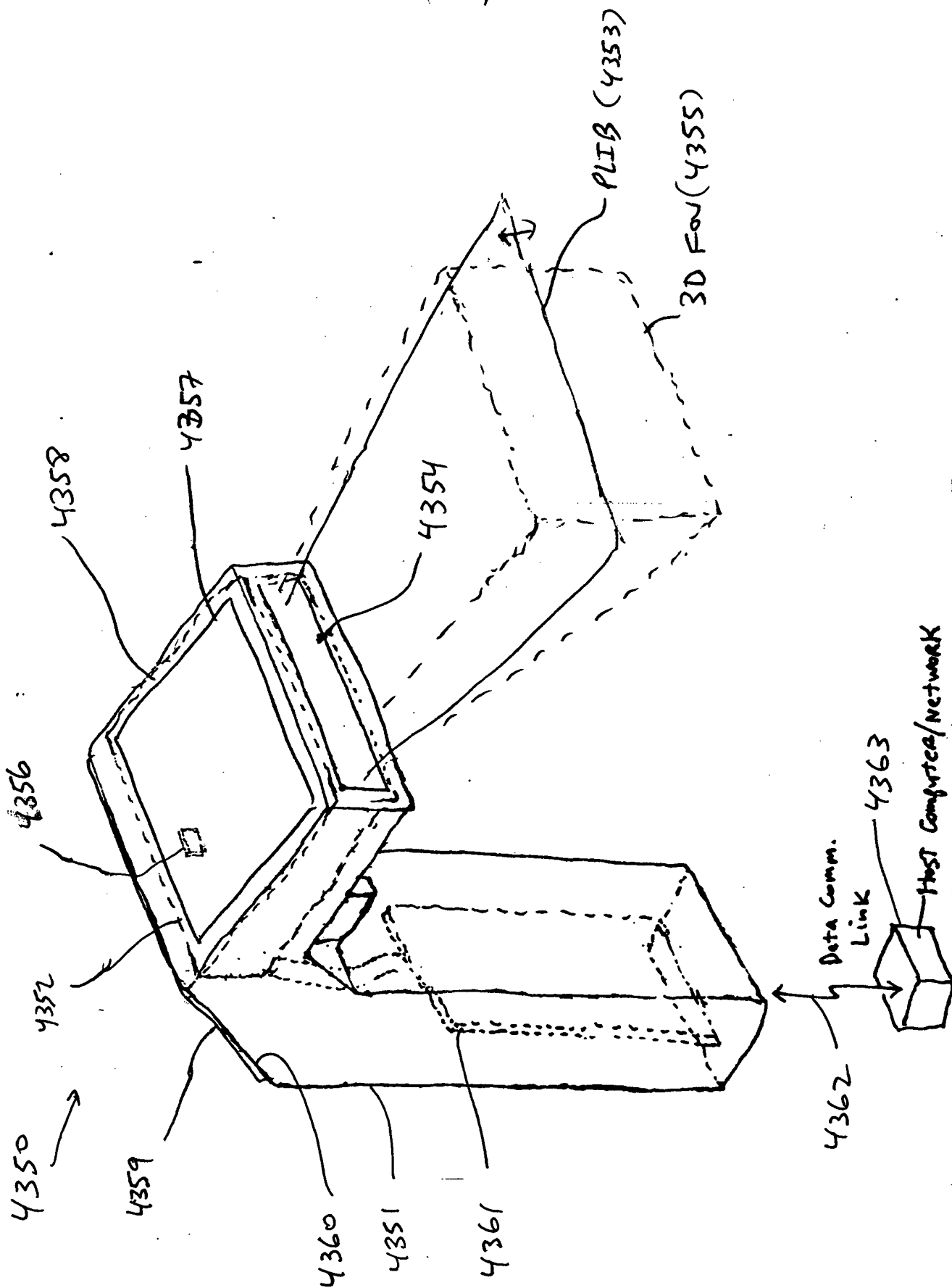


FIG. 62B

meas oscillin
Spot int intensity
mod. panel

Fig. 1F21A-2/D

4350



328/332

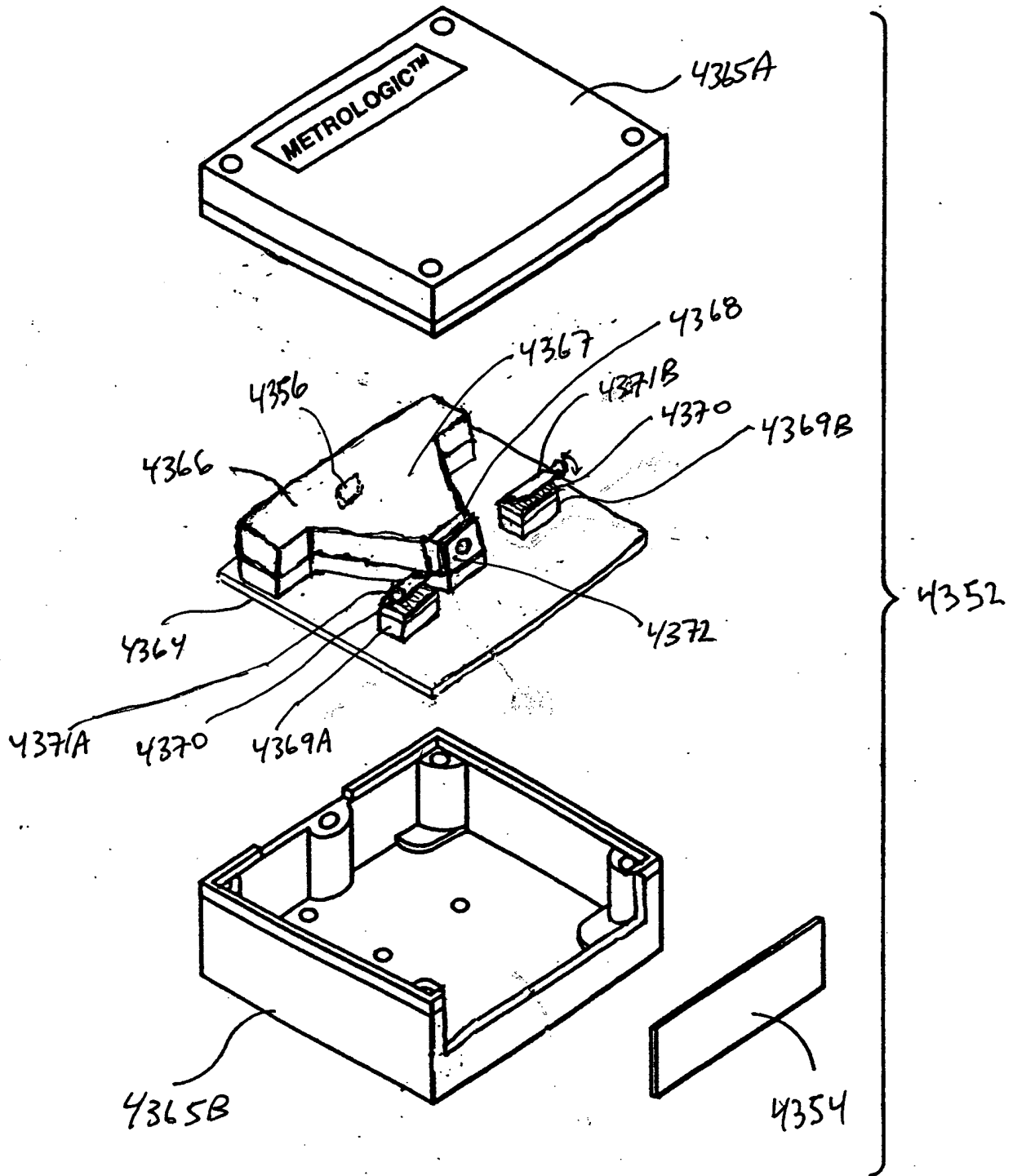


FIG. 63B

EDOC.
Mechanical Rotating Iris

Fig. 1F
23A - 23B

[illegible]

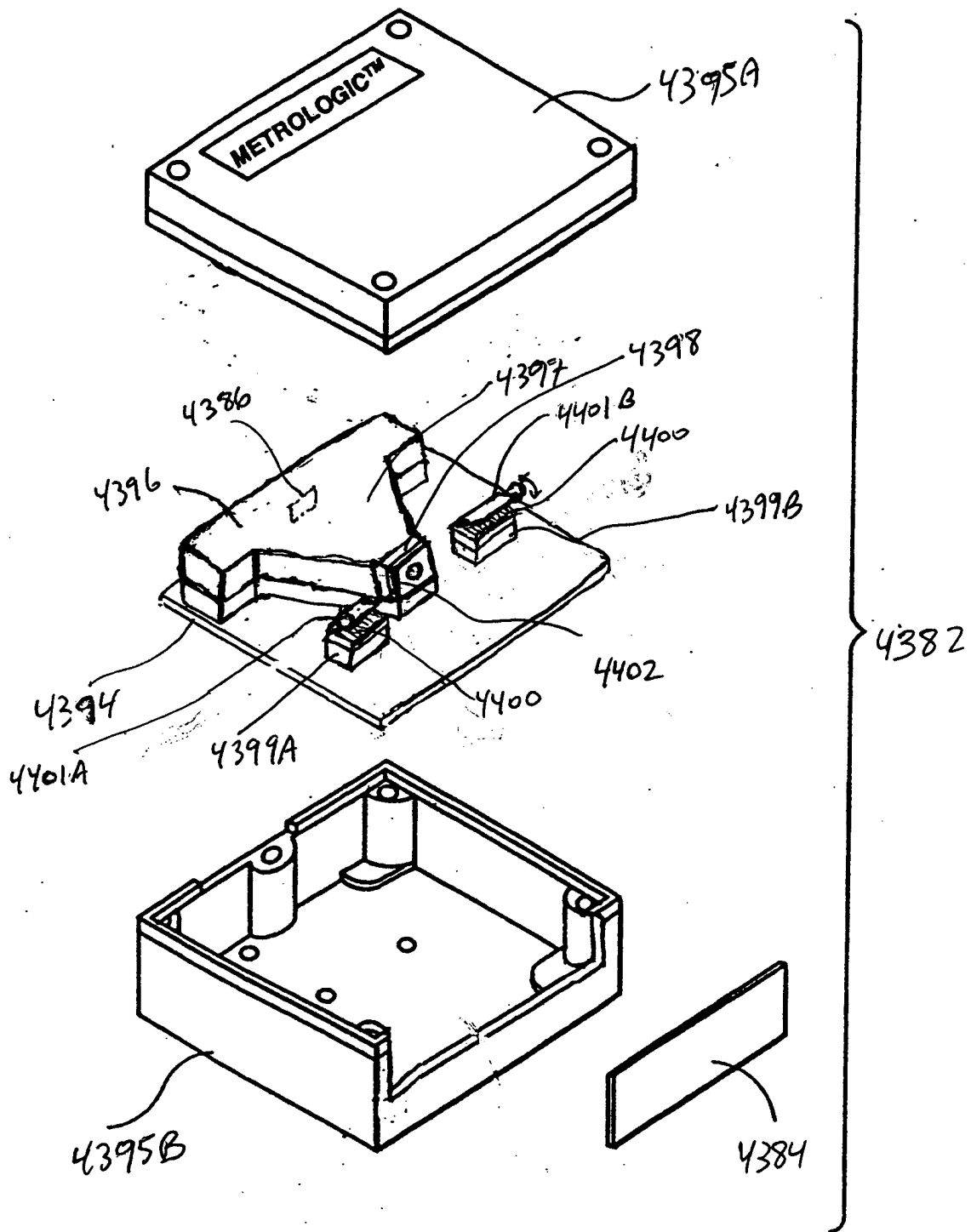


FIG. 64B

* E-optical
Shutter Before
IF Lens
Fig. 1E24A

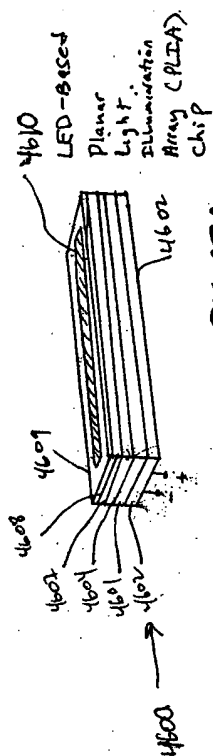


FIG. 67A

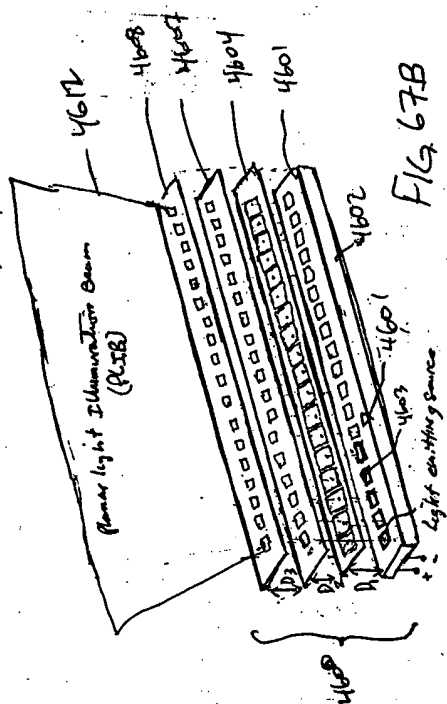


FIG. 67B

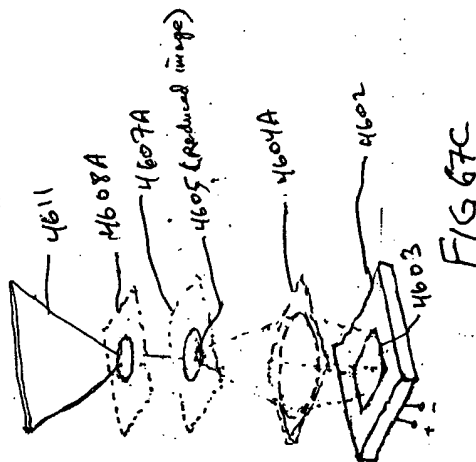


FIG. 67C

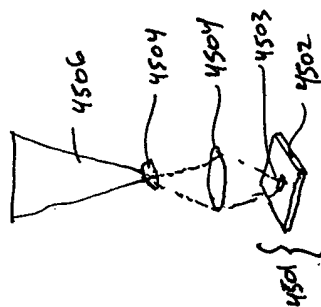


FIG. 65B

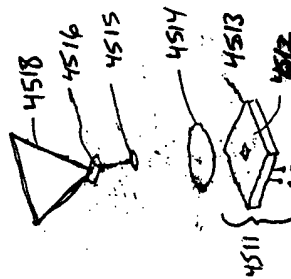


FIG. 66B

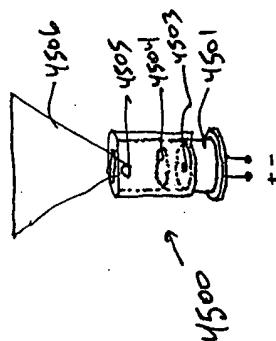


FIG. 65A

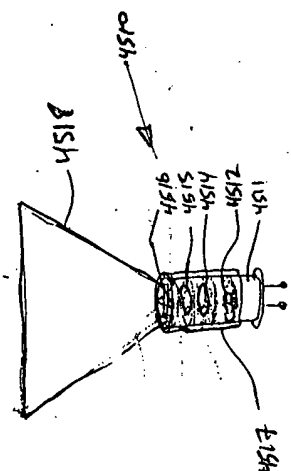


FIG. 66A

552/332

Baggage check-in Station #1

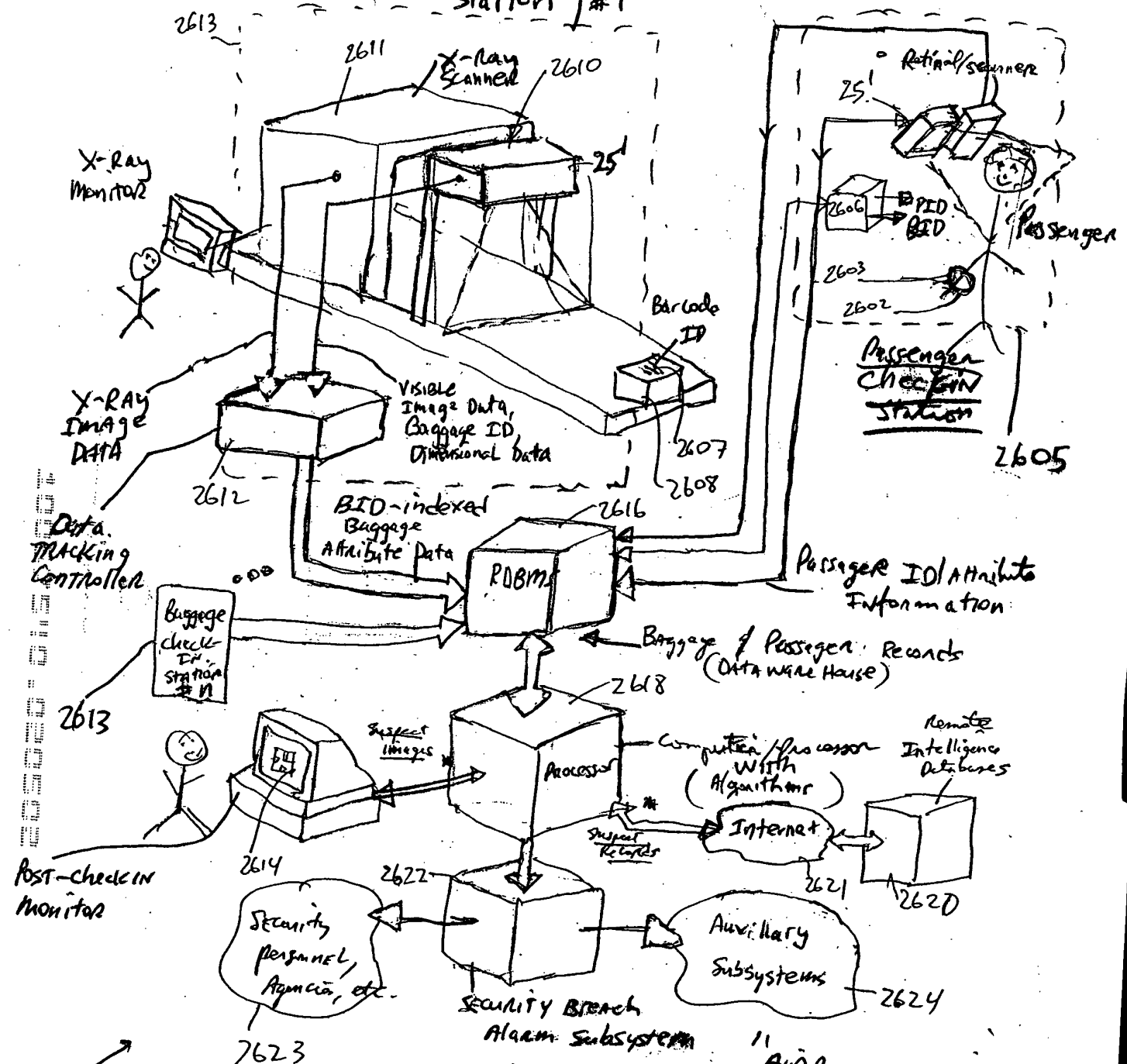


FIG. 68A

"AIRPORT SECURITY
System" (2600)

2600

RDBMS Record X

Attribute data	2621	2620	2622	2622
Passenger ID #
Baggage ID #
Baggage ID #

FIG. 68B